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ABSTRACT

This workshop was organized by the Bahrain National Commission for Education, Science and Culture in collaboration with United Schools International (USI) Arab Regional Office and in cooperation with UNESCO-UNEP International Environmental Education Programme (IEEP). The workshop was designed to: (1) familiarize participants with a series of modules on teacher training in environmental education prepared by IEEP; (2) identify institutions for possible local adaptation of the modules in the participating member states; and (3) identify documents and activities on teacher training in environmental education to be developed by IEEP at the subregional, regional, and international levels. This document reports on the discussions at the workshop. Participants identified environmental problems and suggested remedial action. Problems facing various countries were considered and suggestions were formulated to improve the region's overall environment. (TW)

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UNESCO-UNEP INTERNATIONAL ENVIRONMENTAL EDUCATION PROGRAMME (IEEP)

SUBREGIONAL WORKSHOP ON TEACHER TRAINING IN ENVIRONMENTAL EDUCATION FOR THE ARAB STATES

Organised by
BAHRAIN NATIONAL COMMISSION FOR EDUCATION, SCIENCE AND CULTURE

in collaboration with
USI ARAB REGIONAL OFFICE
and
IEEP

BAHRAIN, 25 - 30 January 1986

SE 048 389

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PREFACE

The following pages contain the final report of the Subregional Workshop on Teacher Training in Environmental Education for the Arab States, organised by Bahrain National Commission for Education, Science and Culture, in collaboration with the Arab Regional Office of United Schools International, in Bahrain from 25-30 January, 1986.

The Workshop was conducted under the patronage of H E Dr Ali Fakhro, Bahrain's Minister of Education, who was present at the inaugural session. Dr Abdul Ghafoor Ghaznawi, Programme Specialist, Technical and Environmental Education Section, Division of Science, Technical and Environmental Education, Unesco, Paris, elaborated to the 20 participants of the Workshop the process through which the EE modules evolved.

Participants came from Bahrain, Iraq, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, Syria and the UAE.

The Workshop fathomed the depths of environmental problems in the Arab region and suggested remedial action. It made a study of the problems facing various countries in the region and, in the light of the several EE modules, suggested steps to be taken to improve the region's environment.

The Workshop served both to heighten participants' awareness of environmental problems and to deepen their commitment to solving them.

We are grateful to Unesco for its financial help in arranging and conducting the Workshop. Our special thanks to Dr Abdul Ghafoor Ghaznawi for guiding the deliberations; and to Dr Ismail M Madany for editing the Arabic version of this report and translating the same into English.

We place on record our gratitude to the following speakers at the Workshop: Dr Rafica Hammoud of the Education Department at the University College of Arts, Science and Education, Bahrain; Dr Ismail M Madany, Gulf Polytechnic; Mr Khalid Fakhroo of the Environmental Protection Committee; Dr Kadhim Al-Khalili, Ecologist, Arabian Gulf University; Dr Abdul Majid Abdulla, of UNEP, West Asia Regional Office; and, Mrs Khatoon Sangoor, Specialist in the Ministry of Education, Bahrain. There are several others who have contributed to the success of the Workshop. To all of them we say Thank You.

Jiya Lal Jain
Secretary General
United Schools International

Rashid Sulaybikh
Secretary General
Bahrain National Commission
for Education, Science and Culture

CONTENTS

I. Introduction 1
II. Proceedings of the Workshop 3
III. Presentation on Unesco-UNEP International Environmental Education Programme (IEEP) 6
IV. Presentation of Country Reports 7
V. Conclusions and Recommendations 8
VI. First Training Unit 10
VII. Second Training Unit 30
VIII. Third Training Unit 38
IX. EE in the Light of Tbilisi Conference 48
Appendices 49
Appendix 1: Agenda 50
Appendix 2: Day-to-day Programme 51
Appendix 3: List of Documents 53
Appendix 4: List of Presenters 54
Appendix 5: Presentation on Unesco-UNEP International EE Programme 55
Appendix 6-A: Opening Speeches: Mr Rashid Sulaybikh 62
Appendix 6-B: Mr Jiya Lal Jain 64
Appendix 6-C: Dr Abdul Ghafoor Ghaznawi 66
Appendix 6-D: Dr Raja Gedeon 68
Appendix 6-E: Closing Speeches: Dr Abdul Ghafoor Ghaznawi 71
Appendix 6-F: Mr Rashid Sulaybikh 73
Appendix 6-G: Mr Jiya Lal Jain 74
Appendix 7: List of Participants 75
Appendix 8: Country Reports
1. Jordan 77
2. United Arab Emirates 79
3. Bahrain 81
4. Saudi Arabia 82
5. Syria 83
6. Iraq 85
7. Oman 87
8. Qatar 89
9. Kuwait 90
Appendix 9: Members of the Organising Committee 92
Appendix 10: Summary of EE in the Light of Tbilisi Conference 93

I. INTRODUCTION

1.1 Preparation

The Sub-regional Workshop on Teacher Training in Environmental Education for the Arab States was organised by the Bahrain National Commission for Education, Science and Culture in collaboration with United Schools International (USI) Arab Regional Office and in co-operation with UNESCO-UNEP International Environmental Education Programme (IEEP). The Workshop was organised under UNESCO contract in the context of its Programme & Budget for 1984-1985 as an activity of IEEP, Division of Science, Technical and Environmental Education (ED/STE).

The objectives, agenda, information note, invitation letter, timetable of work, and working documents of the Workshop consisting of six teacher training modules in environmental education (EE) were prepared by IEEP. Similarly, a set of EE reference documents and needed funds for the preparation and organisation of the Workshop were provided by IEEP. Dr Abdul Ghafoor Ghaznawi, Programme Specialist in Environmental Education, representing UNESCO, served as a resource person and consultant in providing technical support to the Workshop and assisting in its organisation.

Bahrain National Commission for Education, Science and Culture in collaboration with USI Arab Regional Office prepared detailed plan of the Workshop, issued invitations to UNESCO National Commissions of identified Member States, issued economy air travel tickets to identified participants, received them on arrival at the airport, and accommodated them at Hotel Delmon. Bahrain National Commission and USI provided six resource persons to study the five teacher training modules at the Workshop. Furthermore, Bahrain National Commission administered the organisation of the Workshop, prepared its draft final report in Arabic and reproduced it after study by participants and approval by UNESCO. Similarly, the final report of the Workshop was translated into English and reproduced.

1.2 Objectives

The Workshop had the following objectives:

(a) To familiarise participants with a series of modules on teacher training in environmental education prepared under IEEP.

(b) To identify institutions for possible local adaptation of the modules in the participating Member States.

(c) To identify documents and activities on teacher training in EE to be developed by IEEP at the sub-regional, regional and international levels.

(d) To enhance exchange of information and experience in this field.

1.3 Date and Venue

The Workshop was organised from 25 to 30 January 1986 in the premises of Hotel Delmon, Manama, Bahrain.

1.4 Participants

There were 20 participants in the Workshop. They came from Bahrain, Saudi Arabia, Kuwait, Qatar, Oman, United Arab Emirates, Jordan, Syria and Iraq.

For names, functions, and addresses of participants, see appendix 7.

1.5 Bureau of the Workshop

The following bureau was elected:

Chairman: Mrs Khatoon Sangoor, Bahrain
Vice chairman: Mr Abdul Aziz Abdul Rahman, Saudi Arabia
Rapporteur: Mr Abdul Rahman Ismail, Iraq.

1.6 Steering Committee

Mr Rashid Sulaybikh, Secretary General, Bahrain National Commission;
Dr Abdul Ghafoor Ghaznawi, UNESCO, Paris;
Mr Jiya Lal Jain, Secretary General, USI;
Mrs Khatoon Sangoor, Bahrain;
Dr Abdul Rahman Ismail, Iraq.

1.7 Drafting Committee

Dr Abdul Rahman Ismail, Iraq;
Mrs Liwa'a Shaaban, Syria;
Mr Moosa Mohammed Abdul Wali, Jordan;
Dr Abdul Ghafoor Ghaznawi, UNESCO, Paris.

II. PROCEEDINGS OF THE WORKSHOP

2.1 Opening Session

Under the auspices and in the presence of H. E. Dr Ali Fakhro, MD, Minister of Education and Chairman, Bahrain National Commission, the Sub-regional Workshop on Teacher Training in Environmental Education for the Arab States was inaugurated at 9.00 a.m. on Saturday, 25th January 1986, at Delmon Hotel, Bahrain.

The session was opened with a recital from the Holy Quran. Then Mr Rashid Sulaybikh, Secretary General, Bahrain National Commission, delivered a speech in which he said that the National Commission for UNESCO in collaboration with the Arab Regional Office of USI had previously organised two workshops in EE. So this Sub-regional Workshop would help the participants deduce realistic results in EE by relying on the reports of the participating countries, the teacher training modules in EE, and the research of the specialists. He pointed out that EE should be given to students in schools as well as outside, and this process of learning should be continuous.

He elaborated on the role of UNESCO in developing EE and that the first international conference on EE (Tbilisi, USSR, 1977) was organised by UNESCO in collaboration with UNEP.

On behalf of the Minister of Education, Mr Sulaybikh thanked UNESCO for the technical and financial support provided to hold the Workshop. He thanked the Secretary General of USI and those who were going to present the modules in EE. He also thanked the participants in the Workshop.

For full text, refer to appendix 6 A.

Then, Mr Jiya Lal Jain, Secretary General, USI, gave a short speech. He said it afforded him particular pleasure to be associated with the Workshop. He pointed out that non-governmental organisations and agencies can do much good to the cause of education, especially EE where success depends on generating popular awareness of the issues involved. This was the third workshop in the series on EE, and it was fortunate to have the participation of eminent speakers in the field. These discussions would be useful for teachers and supervisors in EE, which has assumed added significance in view of the worsening environmental situation the world over.

On behalf of the organising committee, Mr Jain thanked H. E. Dr Ali Fakhro, Minister of Education, for his patronage and support to the Workshop. He welcomed the audience and hoped that the Workshop would enhance their environmental awareness.

For full text, see appendix 6 B.

Dr Abdul Ghafoor Ghaznawi, Programme Specialist in Environmental Education, UNESCO, Paris, addressed the session next and welcomed the audience on behalf of UNESCO. He elaborated the objectives of the Workshop and the process through which the five teacher training modules in EE had been prepared. He pointed out that each of the modules had the objectives to impart to its target group (a) an understanding of the philosophy, goals, objectives and history of the development of EE, (b) essential knowledge about the environment and its problems, (c) EE teaching methodologies and evaluation techniques for teaching/learning, and (d) strategies for curriculum development, teacher training and management in EE.

On behalf of UNESCO, Dr Ghaznawi thanked the Government of Bahrain for facilitating the organisation of the Workshop. He thanked H. E. Dr Ali Fakhro, Minister of Education, for his keen interest and strong support in the preparation and organisation of the Workshop. He thanked the Bahrain National Commission for hosting and organising the Workshop in collaboration with USI.

For full text, see appendix 6 C.

The last speech was delivered by Mr Raja Gedeon, Deputy Director, UNEP, Regional Office for West Asia. He welcomed the audience on behalf of the Executive Director of UNEP, Dr Mostafa Tolba, and the Director and Regional Representative of the UNEP Regional Office for West Asia, Mr Salih Osman.

He pointed out that EE is one of the main objectives which UNEP endeavours to achieve and UNEP in collaboration with UNESCO launched the IEEP in 1975.

He said that this Sub-regional Workshop should focus on perceptual environmental problems faced by Arab countries. The main reason for training teachers and supervisors for EE is to enable them to become thoroughly acquainted with the problems.

He thanked the Bahrain National Commission, USI and UNESCO for preparing and organising the Workshop.

For full text, see appendix 6 D.

2.2 Working Methods

Plenary sessions were devoted to the election of the bureau of the Workshop, presentation and discussion on UNESCO-UNEP International Environmental Education Programme, presentation of country reports, presentation and discussion by five resource persons of the five teacher training modules in EE. Each module was further studied at plenary sessions. A film on EE was screened and a field trip organised. The last plenary session was devoted to the study of the draft final report.

2.3 Closing Session

The Workshop was closed on 30th January 1986 at Delmon Hotel by Mr Rashid Sulaybikh, Secretary General, Bahrain National Commission. He thanked the participants for their regular attendance at all sessions and their valuable suggestions and observations.

For full text of closing session speeches by Mr Rashid Sulaybikh, Mr Jiya Lal Jain, and Dr Abdul Ghafoor Ghaznawi, see appendix 6 E.

2.4 Acknowledgements

The Workshop participants thanked the Government of Bahrain and particularly the Minister of Education, H. E. Dr Ali Fakhro, for his support in the preparation and organisation of the Workshop. They also thanked Mr Jain and Mr Sulaybikh, Secretaries General respectively of USI and the Bahrain National Commission for Education, Science and Culture.

III. PRESENTATION ON UNESCO-UNEP INTERNATIONAL ENVIRONMENTAL EDUCATION PROGRAMME (IEEP)

The presentation on IEEP was made by Dr Abdul Ghafoor Ghaznawi, UNESCO, Paris. He pointed out that the Declaration of the United Nations Conference on Human Environment, organised in Stockholm, Sweden, in 1972, proclaimed: "To defend and improve the environment for present and future generations has become an imperative goal for mankind." It was added that Recommendation 96 of the above conference stated that an international programme in EE be established. It was in this context that UNESCO and UNEP established in 1975 the UNESCO-UNEP International Environmental Education Programme (IEEP). The current general objective of IEEP was mentioned to promote the implementation of the recommendations of the Tbilisi Intergovernmental Conference on EE (1977). Current activities of IEEP were mentioned to emphasize (i) the incorporation of EE into teaching/learning processes at primary and secondary schools, pre-service and in-service teacher education, university general education, technical and vocational education and non-formal education for the general public, (ii) local adaptation and use of EE materials developed under IEEP, and (iii) fostering international cooperation in this field. Activities undertaken by IEEP were presented under Exchange of Information, Development of EE goals, Objectives, Guiding Principles and Concepts, Research and Experimentation, Training of Personnel, and International Cooperation. For text of the presentation refer to appendix 5.

IV. PRESENTATION OF COUNTRY REPORTS

Nine country reports from the participating countries were presented at the Workshop. Each report provided information on (i) the physical, social, economic and cultural aspects of the country relevant to EE, (ii) major environmental problems, their causes and some measures taken for their solution and prevention, (iii) current elements of EE in formal and non-formal education, (iv) future reflections on the development of EE and teacher training in this field.

For summaries of the country reports, refer to appendix 8.

V. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

(a) Incorporate EE into the existing curriculum of elementary schools using the multidisciplinary approach.

(b) Include EE as an independent subject into community colleges and teacher training institutions.

(c) EE should be taught using various methods and emphasis should be laid on self-learning so that students carry out activities independently under teachers' guidance.

(d) In evaluating students in EE, new approaches should be adopted. The teacher should record the students' behaviour, both in and outside the classroom, and assess their performance.

(e) Incorporate an environmental dimension into the existing programme of teacher training.

(f) Train supervisors to be leaders in EE.

(g) Incorporate EE into secondary school curriculum as an independent subject.

(h) Use innovative methods to teach EE, especially the problem-solving method.

(i) The Ministry of Education should coordinate with other institutions which are concerned with environment, in preparing the EE curriculum.

5.2 Recommendations

(a) Prepare a teacher training module suitable for training elementary teachers in Arab countries.

(b) Organise a workshop to discuss the module referred to in section (a).

(c) Mass media should help increase environmental awareness of students through various methods such as cultural activities.

(d) UNESCO should prepare the following:

(i) A working guidebook for elementary and secondary teachers in EE, to be used by supervisors to achieve the objectives of EE.

(ii) Television films on EE.

(iii) Comprehensive guidelines for teacher training institutions in EE.

VI. FIRST TRAINING UNIT

6.1 EE: Module for Pre-service Training of Teachers and Supervisors for Primary Schools

The above module was summarised and presented to the Workshop in Arabic by Dr Rafiqa Hamoud, Education Department, University College of Science, Arts and Education, Bahrain. The presentation was followed by group discussion.

The following are the resume of the module and the discussion on it.

Resume

INTRODUCTION

This module focuses on the pre-service training of teachers and supervisors in EE for primary schools.

In this context, the module addresses itself to (a) the historical and philosophical development of EE, (b) essential knowledge about the environment and its problems, (c) teaching methodologies, activities and experiments and evaluation in EE, and (d) strategies for the integration of an environmental dimension into primary school curriculum.

Specific objectives

1. To increase environmental awareness, sensitivity and consciousness of pre-service teachers toward the environment, its problems and their prevention and/or solution.

2. To acquaint pre-service teachers with essential knowledge about the environment and its allied problems.

3. To acquaint pre-service teachers with the need for, the importance, the goals, objectives and guiding principles of EE.

4. To acquaint pre-service teachers with fundamental environmental concepts which will enable them to manage environmental education in the primary school.

5. To help pre-service teachers realize the totality of the environment as a rationale for the use of the interdisciplinary approach in school.

6. To familiarise pre-service teachers with teaching strategies in EE.

7. To familiarise pre-service teachers with certain activities and experiments essential to, and motivating for, the learning and teaching of the environmental dimension of the primary school curriculum.

8. To demonstrate to pre-service teachers the development of unit and lesson plans for EE.

9. To familiarise teacher trainers with techniques for assessing the learning of pre-service teachers and their competence/effectiveness in the teaching of EE.

10. To orient pre-service teachers towards strategies for the planning, development, implementation of EE and for evaluating the progress of primary school students.

This module consists of two main sections: (a) Content for EE; (b) Methodology for EE.

SECTION ONE
CONTENT FOR ENVIRONMENTAL EDUCATION

This section attempts to present

(a) a rationale for EE;
(b) some of the events which have brought it to its present status;
(c) overview of the knowledge component which forms a base for building the skills and fostering the attitudes promoted by EE.

This section consists of four chapters:

(1) History and philosophy
(2) The environment
(3) Problems arising from interactions in the environment
(4) Dealing with problems

CHAPTER 1
HISTORY AND PHILOSOPHY

Alarm about the pollution of the environment was first raised by ecologists in the technologically and scientifically advanced nations. June 5-16, 1972, was the first conference on the human environment organised by the United Nations and was held in Stockholm. This was followed by an international workshop in Belgrade, October 13-22, 1975. The workshop spelled out a framework and a set of guiding principles for EE. A series of regional

meetings were held in Brazzaville for Africa, Bangkok for Asia, Kuwait for the Arab States, Bogota for Latin America and the Caribbean, Helsinki for Europe. Then an intergovernmental conference was organised by UNESCO in cooperation with UNEP, at Tbilisi, October 14-26, 1977. In this conference a criteria was set for the development of EE in schools and colleges, this is as follows:

(a) A basic aim of EE is to succeed in making individuals and communities understand the complex nature of the natural and the built environments resulting from the interaction of their biological, physical, social, economic and cultural aspects, and acquire the knowledge, values, attitudes, and practical skills to participate in a responsible and effective way in anticipating and solving environmental problems, and the management of the quality of the environment.

(b) A further basic aim of EE is clearly to show the economic, political and ecological interdependence of the modern world, in which decisions and actions by the different countries can have international repercussions. Environment should, in this regard, help to develop a sense of responsibility and solidarity among countries and regions as the foundation for a new international order which will guarantee the conservation and improvement of the environment.

The participating countries responded positively by undertaking the development of EE and also by introducing legislation to protect the social and physical environments. As an example of this action, two conferences (sponsored jointly by UNEP and ECLA - Economic Commission of Latin America -) have been held in the Caribbean and Latin American region. These conferences resulted in the adoption of the Caribbean Action Plan containing 66 projects aimed at strengthening the institutional framework for management of the environment, for the control of pollution and for the dissemination of EE. Representatives to this conference came from 30 countries, representing the governments of Caribbean States, South American States, the United States, France, Britain and the Netherlands. The Caribbean Environmental Programme will be sited in a permanent centre the location of which is to be decided.

Educators all over the world have been pressing ahead with their task. In the formal system, according to a UNESCO report, primary schools and universities have received the greatest inputs. The teaching approach has been interdisciplinary or by infusion. In the universities, environment-related topics have been introduced into the traditional disciplines. Central to the educational activities has been the training and retraining of teachers. Educational activities have also been carried out

in a non-formal manner by clubs, political movements, trade unions. Target groups have been farmers, engineers, architects, landscape gardeners, public health specialists, planners and directors of public and private services. Educational activities have included excursions, lectures, participation in health education and environmental protection campaigns, nature-preservation camps and nature clubs, framing and implementation of community planning. Learning resources have been the environment itself, audio-visual and printed materials, zoological and botanical gardens, museums, nature trails.

Towards a Philosophy for EE

The call for EE is a call for global action in response to the problem of the abused environments - physical and social - of the whole world. The call is to each national education sytem to foster and encourage the development of world citizens, internationalists, who share a concern for the environment in which they now live and in which their descendants will also have to live.

The world citizen should have two characteristics: self-discipline and a global dimension to his personal ethics.

The objectives and guiding principles for EE consonant with this overall goal were formulated at the Tbilisi Conference (1977), and are internationally accepted. With minor additions, these are presented:

Objectives

Awareness: To help social groups and individuals acquire an awareness of and sensitivity to the total environment and its allied problems

Knowledge: To help social groups and individuals gain a variety of experiences in, and acquire a basic understanding of, the environment and its associated problems

Attitudes: To help social groups and individuals acquire a set of values and feelings of concern for the environment and the motivation for actively participating in environmental improvement and protection

Skills: To help social groups and individuals acquire the skills for identifying, anticipating and solving environmental problems

Participation: To provide social groups and individuals with an opportunity to be actively involved at all levels in working towards resolution of environmental problems.

Guiding principles

EE should:

--consider the environment in its totality - natural and built, technological and social (economic, political, technological, cultural-historical, moral, aesthetic);

--be a continuous lifelong process, beginning at the pre-school level and continuing through all formal and non-formal stages;

--be interdisciplinary in its approach, drawing on the specific content of each discipline in making possible a holistic and balanced perspective;

--examine major environmental issues from local, national, regional and international points of view so that students receive insights into environmental conditions in other geographical areas;

--focus on current potential environmental situations, while taking into account the historical perspective;

--promote the value and necessity of local, national and international cooperation in the prevention and solution of environmental problems;

--explicitly consider environmental aspects in plans for development and growth;

--enable learners to have a role in planning their learning experience and provide an opportunity for making decisions and accepting their consequences;

--relate environmental sensitivity, knowledge, problem-solving skills, values clarification, issue investigation and evaluation, to every age, but with special emphasis on environmental sensitivity to the learner's own community in early years;

--help learners discover the symptoms and real causes of environmental problems;

--emphasize the complexity of environmental problems and thus the need to develop analytical and synthetic intellectual skills;

--utilize diverse learning environments and a broad array of educational approaches to teaching/learning about, from and for the environment with the stress on practical activities and first-hand experience;

--to provide experiences in identification, evaluation, planning and implementation of environmental action.

It follows from these objectives and guiding principles that there is a certain knowledge component which is essential as a base for building the skills and fostering the attitudes which are the main focus of EE. Elements of this knowledge component are given in the section which follows.

CHAPTER 2
THE ENVIRONMENT

The environment encompasses everything, living and non-living objects, the interactions between these and the products of these interactions.

This chapter will treat at a basic level the facets suggested above under four headings:

(a) Biophysical components
(b) Ecosystem interrelationships
(c) Socio-cultural and economic components
(d) Interactions between the biophysical and socio-cultural components

Each section has been discussed fully.

CHAPTER 3
PROBLEMS ARISING FROM INTERACTIONS IN THE ENVIRONMENT

Underlying all problems associated with the environment is one common denominator, namely, imbalance. The overriding characteristic of natural systems is their capacity to maintain a steady state or equilibrium. Interactions promote or limit each other in such a way as to maintain a situation in which there is harmony. Whenever this dynamic balance is upset, there is an environmental problem. Some of the problems are man-induced, but many are, and arise out of, naturally occurring events. This chapter will attempt to consider some of both types of problems.

a. Some naturally-occurring problems

These include cyclones, waves, floods, fires, earthquakes, volcanoes. These 'natural events' are both the result and the genesis of imbalance. Examples are given in the context.

b. Some man-induced problems

Man has consciously or unconsciously manipulated the resources of the biophysical world to satisfy his way of life. This caused an imbalance in the system and created environmental problems. These problems are considered as follows:

(i) Meeting the need for food

Man employed all possible strategies to increase the food supply, such as selective breeding, fertilizing, pest control, irrigation, and mechanisation.

(ii) Meeting the need for water

No water means no life. So water is required for domestic purposes, agriculture, manufacture and industry, transportation, and recreation. These demands for water must be met. The following strategies have been taken, like storage of surface water, tapping underground supplies, cloud seeding, desalination and recycling.

(iii) Meeting the need for minerals and energy

Mining operations attendant on providing both mineral and fuel supplies create a host of environmental problems, such as air and water pollution.

CHAPTER 4
DEALING WITH PROBLEMS

Problems are sociological, technological, economic, ecological, all aspects have to be considered together. These can be solved by a change in the attitudes of people. Man must acknowledge at a personal as well as at the wider community, national and international level, his own responsibility for protecting and improving the environment of which he is an important part.

a. Dealing with naturally-occurring problems

To date, no way of avoiding these exists, but their impact can be considerably reduced if international and national authorities, local civic authorities and people in general assume a stance of preparedness.

b. Dealing with man-induced problems

The central consideration is to increase world food supply and arrange for its equitable distribution to a rising population while at the same time preserving and/or improving the environment and maintaining equilibrium in ecosystems. Three foci of attention present themselves in the light of past experience:

(i) the spread/intensification of agriculture

(ii) the utilization of unconventional sources of supply

(iii) arrangements for distribution

Meeting the need for energy

Energy plays a key role in all resource processes, and there is no substitute for it, only different ways of harnessing it. Its availability may well be regarded as the most important limiting factor dictating the quality of the environment and of man's life. Its provision contributes heavily to all types of environmental problems.

Meeting the need for minerals

Minerals have been loosely classified as substances obtainable from the earth by mining. The minerals needed for plant and animal growth have been dealt with in the section on food, and the fossil fuels in the discussion on energy.

For the rest, two types of approach suggest themselves:

(i) Use alternative materials

(ii) Make more economical use of what is available.

Meeting the need for water

Solutions to the provision of an adequate water supply seem to centre around four strategies:

(i) Reafforestation measures, coupled with preventive legal steps to halt the destruction of forests. This would help to protect the watersheds and keep the cycle of water moving, through increased transpiration.

(ii) Seeking wherever possible to 'clean' surface water, like rivers, which have already become polluted by chemicals and detergents, and to prevent futher pollution. Eutrophication processes can be reversed.

(iii) The development of new technologies which would reduce the requirements of industry. For example, it takes about 110,000 gallons of water to make one ton of steel. (Goldstein 1976)

(iv) Recycling supplies: this would apply particularly to sewage and similar organic waste. The closed system of recycling water makes the approach desirable. The economic cost can, however, be very great especially in the tertiary stage.

Solution to human population growth and settlement

The intensification of environmental problems due to human population growth and settlement patterns has been stressed repeatedly.

It has been pointed out that growth problems are in response to conscious and deliberate behaviour. Population control, therefore, has to be achieved in the same way - as a result of deliberate processes. It is a social undertaking. The task calls for total public education regarding the issues, and awareness and practice of family planning measures. This is especially necessary in the poorer countries which are the centres of highest population increase. Religious teachings, social customs and biases counter these efforts - but the efforts must continue. The tendency exists for populations to drift into the cities, due in some measure both to the 'push' provided by the reduction in the labour pool required for agriculture, and to the 'pull' generated by the expectation of a better quality of life in the city. Some steps must, therefore, be taken to reverse this trend. Public education must emphasize the interdependence of rural and urban areas to efface the current feeling that the city is more important than the rural areas, and that the former is therefore the place to be. Economic and political decisions must be taken to provide employment and basic living amenities in rural areas to halt the drift to the cities.

SECTION TWO
METHODOLOGY FOR EE

This section is presented in four parts. Chapter 5 makes suggestions of ways in which EE can be included in existing curricula; Chapter 6 makes recommendations of pedagogy which can be used in the training of teachers for the primary level; Chapter 7 discusses the management of EE in the primary classroom and Chapter 8 considers the question of evaluation in EE.

The philosophy implies that there should be certain characteristics to any methodology employed in the teaching of EE. It should help the student to perceive himself as part of a total system. This concept of totality necessitates an inter-disciplinary approach, the development of intellectual skills or analysing and synthesising, planning and taking action which will contribute to the health and survival of the total system.

CHAPTER 5
STRATEGIES FOR INCLUDING EE IN THE CURRICULUM

In practice, the application of the philosophy presented, means that EE will be taught by methods which, in some way, satisfy criteria for interdisciplinarity. The Infusion method, the Applied Learnings method and the Holistic method are considered applicable.

a) The Infusion Method

This is implemented by adding a new focus to a discipline. This

new focus calls for deliberate selection and inclusion of content which will add to the students' awareness and understanding of the environment and environmental issues. Student attention is probably best focussed by raising questions which will demand a search for hitherto unnoticed meanings, or which will highlight important aspects of environmental learnings.

It will be necessary for the specialist teacher trainer to draw on the expertise of colleagues in the preparation of courses and lessons. Indeed this is imperative, and it is in this way that the Infusion Method satisfies criteria for classification as inter-disciplinary.

b) Applied Learnings

The Applied Learnings method uses a thematic approach to problem solving to complement the separate approach.

The problems for the exercises must be drawn from real life - of the community in which students live or from any other community where the problem exists or existed in the past. The object is to use the knowledge acquired in separate discipline teaching to fully analyse the problem and its implications, propose and examine the consequences of each solution proposed and, on the basis of established criteria, select the solution which will make the best answer to environmental concern, and suggest plans for its implementation.

c) The Holistic Model

The holistic model aims at capturing the spirit as well as the letter of EE. Of the three approaches described, this one carries the best expression of the totality of the environment and of the variety of disciplines which contribute to its understanding. It can be used to study a defined physical area of any size in which the activities named in the model are performed. Thus it could be applied to a home, a town, a country.

CHAPTER 6
PEDAGOGICAL APPROACHES TO EE

The objectives for EE worldwide articulated at the Tbilisi Conference stressed the acquisition of an **awareness** of the environment, an **understanding** of the environment based on knowledge about it, a **concerned attitude** towards the environment, and an **ability to act** arising out of a mastery of the skills of identifying/anticipating problems and preventing or solving them.

These must, therefore, be reflected in the way EE is taught.

The main teaching/learning strategies are:

(i) Project work and problem-solving
(ii) Field trips
(iii) Experiments
(iv) Situation analysis
(v) Role playing, simulation, debates, discussion
(vi) Games and puzzles
(vii) Hobbies

CHAPTER 7
EVALUATION IN EE

Tyler (1949) defines evaluation as the process of determining the extent to which the educational objectives are being realised by any programme of curriculum instruction. He goes on to point out that since the educational objectives aim at producing selected desirable changes in the behaviour pattern of the learner, then evaluation is really the process for determining the degree to which these changes are taking place.

It follows that the process must involve the collection of information on those behavioural changes, which must be both formal and systematic. The important use to which evaluative data should be put makes it imperative that this should be so. The data provide a basis on which to

--examine the effectiveness of learning experiences for producing the desired outcomes in learners

--assess variations in learner achievement

--estimate the effectiveness of the teacher

--identify strengths and weaknesses of learners and teachers and probably underlying reasons for them.

The above implies that evaluation cannot be a 'one-shot' exercise; that any scheme for evaluation should involve both formative and summative aspects. Evaluation should be continuous throughout the programme of instruction (formative) and should also be carried out at its close (summative).

Evaluation must measure knowledge, skills and attitudes which pertain to EE.

CHAPTER 8
MANAGEMENT OF EE IN THE PRIMARY CLASSROOM

This chapter is directly concerned with the teacher at work in the primary classroom. It shows how the knowledge about

EE must be selected, adapted and modified for the primary level student and how it can be included in the curriculum. Because the primary level teacher is usually a generalist - a teacher of many, if not all, of the subjects taught at that level - the primary school teacher has greater control over the curriculum than specialist teachers at the secondary and tertiary levels. The Infusion Method seems an obvious choice for teaching at this level. The Holistic Method is not recommended. The goals of the teaching should be concerned mainly with attitude formation through awareness, appreciation and action. There will, inevitably, be the inclusion of factual knowledge and the development of appropriate skills, but since most of these are not peculiar to EE, the main contribution to EE will be attitudinal.

The child, at the primary level, should develop a sense of his own position in the total environment and be aware of the effect of the environment on him and of the effect of his own actions on the environment. At the end of primary schooling, the child should have reached a basic level of what might be called 'environmental literacy'. This implies the acquisition of learnings fundamental to further learnings at the secondary and tertiary levels and an ability to apply these learnings in making decisions. Just as the child can apply reading skills to reading new material, and apply computation skills to everyday problems, so the learnings of EE will be applied in daily living. The problems of daily living which a primary school child may encounter may include drought and/or floods resulting in the loss of crops, animals, houses, epidemics due to polluted water. These are some of the problems to which learnings must be applied.

The management of EE includes the familiar processes of planning, developing and implementation, evaluation; these are, therefore, the functions which the primary level teacher must perform individually or more desirably with a team of colleagues.

CONCLUSION

Crises of war, food shortages, flood, and other natural disasters, have forced technological man to take a critical look at his lifestyle.

Whether one is a part of a 'developed' or 'underdeveloped' nation, it is necessary to be able to recognise the environmental problems which exist, and to make decisions for action in order to deal with them. So EE becomes a requisite for all educational systems.

The difficulty is in achieving the goals of EE which is aimed at changing man's attitude from one of exploitation of the environment to one of acting in tune with and enhancing it.

Teachers, like other adults, have to change their own attitude before directing the children they teach. This shows the importance of teacher training programmes.

This module has attempted to provide some aspects of the knowledge base primary school teachers will need. The material is by no means exhaustive, there lies much more to be investigated.

SUGGESTED TOPICS FOR DISCUSSION

(a) What are the objectives of EE for primary schools? What are the skills, attitudes and knowledge that students have to learn at the primary school stage?

(b) What are the characteristics of an EE teacher in primary school?

(c) The module suggests topics for teaching EE. Can these topics be employed and adopted in Arab countries or the Gulf region? Discuss the suggested topics and give your opinion.

(d) Select one of the environmental problems in the Arab countries and give methods for studying it and provide suggestions for solving it.

Discussion

This discussion is on the paper presented on EE: module for pre-service training of teachers and supervisors for primary schools. The discussion included the following topics:

(a) The first point discussed is on methods to include EE in the existing curriculum for primary schools. The participants agreed that EE should be incorporated into the subjects taught in the primary school. That is, topics on EE should be added to other subjects.

(b) The participants discussed the possibility of employing the teaching methods mentioned in the module, such as the applied learning and holistic model in the participating countries. They concluded that some methods like applied learning cannot be used in Arab countries since it requires a total change in the curriculum.

(c) The participants pointed out some environmental problems in their countries which were not mentioned in the module.

(d) In teaching EE, teachers should act as guides and students should be able to learn the facts independently.

(e) Evaluation in EE should employ new methods. It should involve both formative and summative aspects. Evaluation should be continuous throughout the programme of instruction and should also be carried out at its close.

6.2 EE: Module for in-service training of teachers and supervisors for primary schools

This module was summarised and presented to the Workshop in Arabic by Dr Ismail Mohamed Al-Madani, Assistant Professor, Chemistry Section Coordinator, Gulf Polytechnic, Bahrain. The presentation was followed by group discussion. The following are the resume of the above module and the workshop discussion on it.

Resume

INTRODUCTION

This module provides the contents of an experimental teacher-training course in EE for the in-service training of primary-school teachers and supervisors. It is addressed to primary-school teachers and supervisors who may themselves have a minimum of ten years of schooling, not necessarily with science as a subject.

The module consists of the following units:

(1) Introduction to the module and objectives
(2) History of EE and the need for EE
(3) Essential knowledge about the environment for the in-service training of primary-school teachers and supervisors with emphasis on environmental problems and their solutions
(4) Methods used in teaching EE, and experiments and activities used to help the teaching and learning about the environment
(5) Evaluation in EE teaching and strategies for planning, development, implementation, management and evaluation of the environment dimension of the primary-school curriculum.

MODALITY OF IMPLEMENTATION

Two alternative modes of implementation may be considered: (1) to make funds available to States for running courses to implement this module and (2) to infuse the content/approach/methodology of this module into the State's own programmes of in-service training at the primary level. It would, however, not be possible in either case to give any specific implementation requirements because of the differences in school systems and their environment.

The need and basis for EE in in-service training of primary-school teachers/supervisors

This unit deals with the need for giving an environmental dimension to education at all levels. Various factors and activities of man result in environmental degradation. These have been

touched upon briefly to focus the attention on the new expectations of society from the educational systems in terms of environmental protection and improvement. Efforts have been made in the unit to elaborate the historical developments in the area of EE. The identified and stated goals, objectives and guiding principles for the planning and development of EE programmes worked out by various internationl agencies have been discussed. The special efforts of the different organisations at the international level (like UNESCO, UNEP) are also mentioned.

Lastly, the need and justification for orientation and training of classroom teachers and supervisors for effective implementation of EE have also been discussed.

The unit aims at enabling the teachers and supervisors to appreciate the need of environmental protection and improvement vis-a-vis education. It will help them to understand the goals, objectives, philosophy and guiding principles on which the EE programmes are being planned and developed. After going through the unit the teachers and supervisors would be more aware of the international and national efforts for developing EE including the training of personnel and practising teachers.

1. Need and justification for EE

Environment and man are two inseparable entities ever since the appearance of the latter on the scene. They have been interacting, and the sensitive relationship between them was operating harmoniously until man started increasing his activities which led to reckless exploitation of the environment.

This situation caused man to think about his environment and protect it from poor management. Education and in particular EE could serve as a tool in enhancing the awareness of the people about the importance of this environment.

2. History of EE

EE was developed starting with the Conference on Human Environment held in Stockholm in 1972. This conference was followed by many meetings in this direction and in 1975, UNESCO and UNEP launched the International Environmental Education Programme (IEEP). This programme was designed to promote reflection and action, as well as international cooperation in this field.

3. Philosophy, goals, general objectives and guiding principles of EE

EE can help in preparing individuals who are more aware of their environment. The goals of EE are

(a) to foster clear awareness of, and concern about, economic,

social, political and ecological interdependence in urban and rural areas;

(b) to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment;

(c) to create new patterns of behaviour of individuals, groups and society as a whole towards the environment.

The guiding principles of EE are

EE should:

consider the environment in its totality;
be a continuous lifelong process;
be interdisciplinary in approach;
examine major environmental issues from local, national, regional and international points of view;
promote the value and necessity of local, national and international cooperation in the prevention and solution of environmental problems; and
help learners discover the symptoms and real causes of environmental problems.

Essential knowledge about the environment for the in-service training of primary school teachers and supervisors

This unit attempts to present a resume of the main factors and interrelations that regulate the natural and the socio-cultural (man-made) environments. The content in this unit has been divided into three sub-units, namely, (1) Environment - its origin and nature, (2) Pathways of matter and flow of energy, (3) Ecological system.

The first sub-unit deals with the basic features of the environment and the fundamental principles and concepts that govern the evolution, sustenance and changes in both the natural and the socio-cultural (man-made) environments. The themes of matter and energy, interaction and change, as fundamental factors of the environment, permeate through the content.

The second sub-unit deals with the pathways of matter and the flow of energy through the living world. The content highlights the importance, significance and the path of interchange of materials between the living and the non-living worlds as a regular and necessary phenomenon for the balance of nature. The cycles of some important materials like carbon, oxygen, nitrogen, water, etc, have been described to provide basic ideas for understanding the balance in the environment. The transfer

of energy and matter through various food chains and food webs and the role of man in each of them have also been described.

The third sub-unit discusses the ecosystem as a tangible unit of the environment. The impact of man on the ecological relationship is discussed.

The concepts of biotic factors such as species, population, and the biotic community, with particular attention to man and his interferences in the system, have been highlighted. It is hoped that this unit would provide the basic knowledge and understanding essential to appreciate the problems of the environment discussed in the next unit.

ENVIRONMENTAL PROBLEMS AND THEIR SOLUTIONS

The environmental problems encountered today are the consequences of the changes brought about by man's intervention in the environment for the satisfaction of his needs and aspirations.

Environmental resources, their deterioration and possible solution

The environmental resources - energy, air, water, soils, minerals, plants and animals - at human hands "suffer through wanton exploitation, yet often through blind ignorance, stupidity and neglect." It is essential for man's own survival to become aware of the limitations and carrying capacities of the environmental resources and to find ways and means of counteracting destructive trends and bring solutions of these problems to the doorsteps of the common man. It is high time we made a sincere effort, at every level, to understand the laws of the economics of nature and adopt them in our daily life.

The following sections discuss our resources, such as energy resources, air, water, soil, plant, and animal resources, the problems and solutions. Then strategies are given for environmental action.

TEACHING METHODOLOGIES

Teaching methodologies to be responsive to the needs of a particular curricular area should take into account the nature of the curricular area itself, the target group of learners, and the available resources for curriculum transaction. Your field experiences must be revealed that the teaching strategies preclude prescription.

This unit has been divided into several sub-units. The first sub-unit covers determinants of teaching methodologies in the context of EE curriculum. The second sub-unit presents elements of instructional design. This is followed by sub-units of specific methodologies like inquiry training/problem solving, clarifying strategies, experimentation and demonstration, and beyond-the-school-wall experiences.

Each sub-unit provides objectives, learning activities and evaluation activities.

EXPERIMENTS AND ACTIVITIES TO FACILITATE THE TEACHING AND LEARNING OF ENVIRONMENTAL DIMENSION OF PRIMARY SCHOOL SUBJECTS

This unit suggests some experiments and activities that can help the teacher to introduce environmental dimensions in the primary-school subjects. The contents of this unit are closely linked with units 4 and 5, namely 'essential knowledge about the environment for the in-service training of primary school teachers and supervisors' and also with 'the problems of the environment and their solution.' It is assumed that the reader of this unit is fully conversant with the contents of those two units, and is now anxious to know how, or, to be more specific, through which activities/experiments a part of the EE content can be imparted to primary-school children while they are engaged in the study of their normal curricular areas.

The ultimate goal is to impart environmental dimensions to children's learning, using for this opportunities available in and around the school, thus linking all learning with the daily life experiences of children.

At the primary level the teaching has to be based on the first-hand experiences of children and the local environment is the most handy resource for providing such experience. Many concepts relevant to EE can be developed by making observations of such common things in the locality as shops, animals, and local festivals.

Moreover, environmental concepts at the primary level should be introduced in such a way that they are meaningful to children. Games, for example, can be used as a tool to simplify and facilitate the learning of environmental concepts.

EVALUATION IN EE TEACHING

This section is common to all modules, and it focuses on evaluation in the specific context of EE teaching.

It consists of two main units, evaluation in EE teaching and utilization of evaluation.

CURRICULUM DEVELOPMENT, IMPLEMENTATION AND MANAGEMENT

Curriculum is an instrument to translate educational goals into practical propositions. The development of a functional curriculum, its management and effective implementation go a long way

in realizing the educational goals envisaged in a particular curriculum area. What is the conceptual frame for developing EE curricula? How is it to be developed? What is the implementation strategy to be adopted for its implementation? How is it to be evaluated? What is the infrastructural support for its effective management? What are its implications for primary teachers? These questions receive focus in this unit.

Two models can be employed for EE curriculum development: (1) interdisciplinary, which implies that EE is to be considered a separate discipline drawing on other disciplines like science, geography, etc. (2) multidisciplinary, implies the incorporation of EE components into other established interrelated disciplines. This is also known as an infused model.

Curriculum development involves translating EE goals into intermediate and immediate instructional objectives. The goals selected for the EE curriculum need to be assigned to content areas and grade levels.

Curriculum implementation

The EE curriculum implementation is comparatively a more difficult task than its development. The first step in its implementation is its acceptance by the department and the school groups. Besides exposure and persuasive measures, there should be the involvement of persons from all categories associated with the implementation of the EE curriculum at all stages right from policy formulation through curriculum planning and professional mobilization to its evaluation. Secondly, the pilot phase may include the innovating schools amenable to new ideas which can then serve as the focus of the network that can be developed around them over a period of time. Thirdly, the implementation must be preceded by adequate preparation ensuring availability of curriculum material, support for instructional materials, training of personnel, and mobilization of organisational support from the education department.

EE curriculum management

The EE curriculum is essentially an exacting area because of its multidisciplinary nature and recency on the educational scene. The organisational framework for the EE curriculum can be conceptualized along three dimensions: levels of administration (federal, provisional/State, district, subdistrict, institution and the class); interdepartmental linkages (education, environment, science and technology, health, etc.); and functional dimensions (planning, implementation, evaluation, renewal, etc.). At the federal level, the policy on environment and EE is formulated. At the State level, the curriculum planning and implementation is taken up; while at the district, subdistrict and institutional levels, executive functions are performed.

There may be a Central Curriculum Development Team (CCDT) comprising teachers, curriculum specialists, content specialists and administrators. The team develops the curriculum.

Curriculum Support Team (CST) at the district and subdistrict levels is constituted for assisting the CCDT in implementing the EE curriculum.

SUGGESTED TOPICS FOR DISCUSSION

1. The above module suggests two methods for the implementation of the module. Which method is more suitable for your country?

2. Is there a common formula for implementing this module, which can suit all Arab countries?

3. The module gives knowledge about the environment essential for the inservice training of primary-school teachers and supervisors. Is the knowledge given enough for the teacher-training? Is it suitable to your country?

4. The multidisciplinary model is suggested for incorporating EE components into other disciplines. What do you think about this concept? Can you suggest alternative models?

5. Discuss the environmental problems in your country.

Discussion

This discussion is on the paper presented by Dr Ismail Al-Madany on EE: module for in-service training of teachers and supervisors for primary schools.

The participants discussed the alternatives available concerning in-service teacher-training in EE.

The teacher-training programmes of other subjects can be utilized by infusing the environmental dimension into the existing programmes.

Training of specialists in EE has also been discussed, so that these specialists can themselves hold teacher-training programmes in EE.

VII. SECOND TRAINING UNIT

7.1 EE: Module for in-service training of science teachers and supervisors for secondary schools

This module was summarised and presented to the Workshop in Arabic by Dr Abdul Majid Abdulla, Information Assistant, UNEP, West Asia Regional Office, Bahrain. The presentation was followed by group discussion. The following are the resume of the module and the Workshop discussion on it.

Resume

I. INTRODUCTION

This module focuses on the in-service training of science teachers and supervisors in EE for secondary schools. Its main objectives are to (a) foster the acquisition and transfer of knowledge, skills and affective attributes concerning the environment and its problems, and (b) develop competence in the teaching and supervision of the environmental dimension of science in secondary schools. In this context, the module addresses itself to (a) historical and philosophical development of EE, (b) essential knowledge about the environment and its problems, (c) teaching methodologies activities and experiments and evaluation in EE, and (d) strategies for the implementation of an environmental dimension of secondary school science.

This module is primarily addressed to secondary school science teachers and supervisors who have had little or no orientation towards EE. Teachers and supervisors with foundations in resource conservation, ecology and environmental management will find the module a practical guide to the presentation of the environmental dimension of science to secondary school students.

The difference in environments and school systems preclude the prescription of specific implementation requirements. Each training centre should devise its own requirements based on local environmental conditions and problems, available resources and the current national, regional and global issues. However, for a product-oriented training programme, the following requirements are suggested:

1. For fulfilment by the management (ie, planners and coordinators) in preparation for the training workshop:

a. preparation of a course curriculum or a syllabus;
b. selection of trainees;
c. preparation of schedule of activities;
d. preparation of a budget;
e. other management activities in preparation for the training workshop.

2. For fulfilment by the trainees:

a. active participation in small and large group discussions;
b. production of a lesson plan or design of an activity;
c. production of an evaluation instrument.

II. OBJECTIVES

General objectives

To develop competence in the supervision/teaching of the environmental dimension of science in the secondary school.

Specific objectives

Through the use of this module, the trainees are expected to:

1. increase their environmental awareness, sensitivity to and consciousness of the environment and its problems, particularly the local environment and the changes occurring therein;

2. develop an awareness and appreciation of the need, importance, goals and objectives, and guiding principles of EE;

3. acquire essential knowledge about the environment and its problems, particularly those relating to the local environment;

4. develop and nurture an understanding of the fundamental environmental concepts and their science content, and vice versa, of science concepts and their environmental dimension;

5. realise that the totality of the environment is a fundamental base for interdisciplinarity among school subjects;

6. develop competence in the use of methodologies most appropriate to the teaching of the environmental dimension of secondary school science, and, in particular, the problem-solving method;

7. develop skills in designing and using activities and experiments essential to and motivating for the learning and teaching of the environmental dimension of secondary school science;

8. acquire competence in the development of lesson plans and the preparation of teaching aids on environmentally oriented science in the secondary schools;

9. competently develop and use evaluation techniques and methodologies to assess the learning of students, the effectiveness of instruction, and the value of the training programme; and

10. learn alternative strategies for planning, development, implementation, management and evaluation of curricula in EE.

III. HISTORY AND PHILOSOPHY OF EE

The historical development of EE is presented in this unit. This topic has been mentioned in previous modules.

The philosophy of EE

From an amalgamation of observations, concerns, motivations, strategies and societal goals threshed out in conferences and workshops, a set of premises for EE has emerged. As expected these premises have both environmental and educational dimensions. These premises are:

1. The rate of social and cultural evolution is faster than the rate of biological evolution. Therefore, biological evolution cannot cope with the environmental imbalances brought about by socio-cultural evolution.

2. Environmental problems are often complex and require the expertise of various disciplines for their solution. To learn about the environment in the natural setting likewise requires an inter-disciplinary approach.

3. Environmental problems should be seen, first, in their local context for the individual to see their relevance to him, and second, in their global context to impress on the individual their magnitude and pervasiveness.

4. The human population, more than any other living species, has wrought damage to the environment and, therefore, it should be held responsible for corrective actions that will hasten the recovery of damaged environments and prevent the destruction of others.

5. The welfare and continuing existence of humankind on the earth depends on the values people have concerning: a. regard and consideration for others, particularly the less fortunate; b. care and protection of humanity's resources; c. strong drive to actions that serve humanity as a whole and improve the environment.

6. The behaviour of people to their natural and built environments is the overt expression of their values and attitudes and their understandings and skills.

7. A harmonious ethical relationship of man to his environment, having environmental conservation and enhancement as its theme, can be developed from early childhood onwards through formal and non-formal education.

Science and EE

Most secondary school curricula are divided into subject areas, one of which is science. To add an interdisciplinary EE course will tend to crowd the curriculum and result in duplication. So one way of bringing EE into secondary schools without burdening the existing curriculum is to use science and other subjects to carry EE concepts, values and attitudes.

IV. ESSENTIAL KNOWLEDGE ABOUT THE ENVIRONMENT

This part of the module is prepared with a view to helping teachers and supervisors acquire essential knowledge about the environment and its problems. An understanding of basic concepts about the environment will aid in developing an appreciation not only of the problems facing conservationists and environmentalists but also the policies, strategies, and regulations by which these problems might be resolved.

The unit comprises the following topics:

1. structure and function of an ecosystem,
2. energy flow in the abiotic component of the earth ecosystem,
3. energy flow in the biotic component of the earth ecosystem,
4. materials flow in the biogeochemical cycles,
5. population dynamics, and
6. human intervention in natural processes.

V. ESSENTIAL KNOWLEDGE ABOUT PROBLEMS OF THE ENVIRONMENT

A. Four major dimensions of environmental problems

In recent conferences on EE, four dimensions of environmental problems in contemporary society have been identified. These are:

1. physical, economic and social consequences of environmental problems,
2. geographical scale of environmental problems,
3. time scale of environmental problems, and
4. socio-economic systems affected by environmental problems.

B. Major causes of environmental problems

The major causes of environmental problems are summarized below:

1. Rapid population growth

Rapid population growth causes serious problems such as food shortage, decreasing surface area, water shortage, energy crisis and scarcity of the earth's materials.

2. Problems from science and technology

3. Problems from development and industrialisation

Development and industrialisation do not come without costs, and have their own problems, like increased waste production and pollution.

4. Problems of urbanisation

The problems are unemployment, poverty, concentration of waste, high incidence of diseases, malnutrition and conflicting land uses.

C. Broad-based measures toward the solution of environmental problems

This unit introduces proposals to solve environmental problems:

1. Control of population growth
2. Using science and technology to solve environmental problems
3. Planning human intervention on natural processes.

VI. TEACHING METHODOLOGIES IN EE

Educators' view about the best teaching method is that any teaching strategy used effectively and efficiently is a successful method. They found that every student has a preferred teaching style which facilitates and enhances his learning.

However, in EE it is necessary to adopt the problem-oriented and action-oriented methodologies which require more learner involvement if the goals of EE are to be achieved.

Some of the methodologies and approaches have been described in this module, such as problem-solving, project method and field trip.

VII. ACTIVITIES AND EXPERIMENTS FOR TEACHING-LEARNING THE ENVIRONMENTAL DIMENSION OF SECONDARY SCHOOLS

EE is meaningful when knowledge gained by the learners can be applied to everyday life. It is meaningful only if the skills developed can be utilised in dealing with the problems or difficulties encountered in life. These may be achieved by the inclusion of activities and experiments that will provide students with opportunities to make decisions or choose between alternatives on current issues.

The suggested activities and experiments included in this module are aimed to help teachers teach certain lessons in EE. The

activities may be enriched or toned down to suit the level of their students.

The activities are selected from the following topics:

1. structure and function of the ecosystem
2. energy flow in the earth ecosystem or ecosphere
3. energy in the biosphere
4. materials flow in the biogeochemical cycles
5. population dynamics, and
6. human interventions in ecological processes.

VIII. EVALUATION IN EE

Evaluation is a necessary concomitant of any educational activity intended to assess its worth or its success. Needless to say, evaluation entails some costs - in man-hours, supplies consumed, salaries of personnel, etc. If the majority of the personnel and participants involved in an educational activity are satisfied with it, is there need for formal evaluation? Despite the inevitable costs of evaluation, the answer generally is yes.

The rationale for evaluation lies in its uses: (1) to give an account of the inputs and outputs of the activity, (2) to improve the activity by identifying areas of strengths and weaknesses, (3) to motivate the personnel and participants involved in the activity by providing feedback on the progress of the activity, (4) to direct the activity toward the desired goals, and (5) to provide directions for decision-making.

The process of evaluation

The evaluation process begins with the decision to conduct an evaluation. Then a decision on what to evaluate is made and next comes the decision on strategy of information gathering.

IX. STRATEGIES FOR IMPLEMENTATION OF ENVIRONMENTAL DIMENSION OF SECONDARY SCHOOL SCIENCE

A. Conceptual framework

The teaching of the environmental dimension of secondary school science is built around the following main ideas:

--The science programme serves as the medium for teaching about the environment.

--Learning science content and processes should be motivated by a desire to know more about environmental components and processes and by a concern about environmental problems and issues.

--Learning science content and processes should go beyond explanations and understandings and aim for effective development.

--Science lessons should build on and draw from local and current environmental conditions and issues for transfer of learning and reinforcement.

--Science lessons should venture into the moral and social implications of scientific activities, technological development and industrial thrusts, and develop students' social conscience.

--Open-ended questions and considerations of alternative strategies, which are techniques used in scientific investigations, should also be applied to the formulation of school project designs and other suggested planned changes in the environment. Consideration of trade-offs, a technique from economics, is also useful in such planned changes. Students should have experiences in using these techniques.

B. Pre-implementation strategies

A great deal of groundwork needs to be done before the actual implementation of an EE project. The main pre-implementation strategies are as follows:

1. Needs assessment
2. Objectives
3. Curriculum development
4. Teacher training
5. Preparing for evaluation
6. Schedule of activities
7. Securing permit and authorisation
8. Site selection
9. Funding

C.Implementation strategies at the management level

The implementation of an EE programme is carried out in three modes: administrative, geographical and curricular.

D. Implementation strategies at the instructional level

Three main considerations are taken at the instructional level: teacher preparation, class interactions and student learning.

SUGGESTED TOPICS FOR DISCUSSION

1. Discuss the relationship between environmental protection and development.

2. What is the human role in destroying and protecting the environment?

3. Discuss environmental issues at the sub-regional, regional and international level.

4. How do we solve environmental problems?

5. How do we infuse EE into science as a subject?

6. Discuss the role of school teachers and administrators in EE programmes.

Discussion

The discussion centred on the following points:

(1) methods of training science teachers and supervisors
(2) creating positive attitudes towards EE among teachers.

VIII. THIRD TRAINING UNIT

8.1 EE: Module for pre-service training of social science teachers and supervisors for secondary schools

The above module was summarised and presented in Arabic by Mrs Khatoon Sangoor. The following are the resume of the module and the workshop discussion on it.

A. Resume

INTRODUCTION

This module focusses on the pre-service training of social science teachers and supervisors in EE for secondary schools. The social science teachers are those concerned with the teaching of history, geography, social studies, economics, the arts, ethics and religion.

This module provides the contents of an experimental teacher-training course in EE. The content has been organised in 9 chapters. Chapter 1 is the introduction and chapter 2 deals with the history and philosophy of EE. Essential knowledge about the environment has been presented in chapter 3. Chapter 4 discusses the problems of the environment and means and ways to their solution and teaching methodologies have been discussed in chapter 5. Experiments and activities to facilitate the learning and teaching about the environment and evaluation in EE has been discussed in chapters 6 and 7 respectively. Chapter 8 deals with strategies for planning, development, implementation, management, and evaluation of the environmental dimension of secondary school social studies curriculum, and chapter 9 is conclusion.

SCOPE AND OBJECTIVES

Specific objectives of pre-service training of social science teachers and supervisors in EE:

1. To increase environmental awareness, sensitivity and consciousness of pre-service (student) teachers and supervisors towards the environment, its problems and their solution and prevention.

2. To acquaint pre-service teachers and supervisors with the need, the importance, the goals, objectives and guiding principles of EE.

3. To acquaint pre-service teachers and supervisors with essential knowledge about the environment and its allied problems.

4. To acquaint pre-service teachers and supervisors with fundamental environmental concepts that may permeate social studies subjects.

5. To help pre-service teachers and supervisors realise the totality of the environment as a fundamental base for interdisciplinary relations among school subjects.

6. To familiarise pre-service teachers and supervisor with teaching methodologies such as problem-solving approaches in EE, especially with respect to the teaching of the environmental dimension of secondary school social science subjects.

7. To familiarise pre-service teachers and supervisors with certain activities and experiments essential to and motivating for the learning and teaching of the environmental dimension of secondary school social science subjects.

8. To familiarise pre-service teachers and supervisors with the development of lesson plans and the preparation of teaching materials in the form of units or modules etc on the environmental dimension of secondary school social science subjects.

9. To familiarise pre-service teachers and supervisors with evaluation techniques and methodologies in EE for understanding the progress of secondary school students, as well as the teachers' own teaching effectiveness with regard to the fundamental dimension of secondary school subjects in fulfilment of EE objectives.

10. As EE is becoming a common denominator for almost all educational renewal, it would seem essential to orient pre-service teachers and supervisors towards strategies for planning, development, implementation, management and evaluation of curricula in EE.

NEED AND BASIS OF EE FOR PRE-SERVICE TRAINING OF SECONDARY SCHOOL SOCIAL SCIENCE TEACHERS AND SUPERVISORS

This section includes a definition of EE and history and philosophy of EE. It also discusses the role of teachers in the success of an EE programme. The secondary school social science teachers should be able to do the following according to this section:

identify an environmental problem;
investigate a problem (identifying and acquiring the relevant background knowledge that is to be used by the class);
prepare and evaluate possible solutions to the problem;
identify possible strategies for social action;
evaluate the strategies for social action.

Social studies teachers should study the man-environment relationship at their own level of inquiry and explore the contribution which their subjects can make in the field of EE. Besides, it

would be beneficial for them to have some idea of basic concepts in ecology since it would help them appreciate other interrelated concepts. A detailed list of competencies particularly with reference to EE content (UNESCO, 1980) is being reproduced for the benefit of teachers.

ESSENTIAL KNOWLEDGE ABOUT THE ENVIRONMENT FOR SECONDARY SCHOOL SOCIAL SCIENCE TEACHERS AND SUPERVISORS

This part of the module is prepared with a view to help social science teachers and supervisors acquire essential knowledge about the environment and its basic concepts. This part consists of the following topics:

1. Introduction about the environment
2. Components of the natural environment
3. Man-made environment
4. Environmental ethics
5. Environmental decisions.

This part has also been dealt with in previous modules.

PROBLEMS OF THE ENVIRONMENT AND MEANS AND WAYS OF THEIR SOLUTION

Environmental problems may be classified in a number of ways. At the Tbilisi Conference, these problems have been grouped as the following depending on different view points:

1. Nature of consequences -- physical, economic and social
2. Geographical scale -- global, regional, national,and local
3. Time-scale -- short-term consequences as well as long-term
4.Stage of development - social, economic and technological systems.

All these classifications deal with the same type of problems. The module gives a detailed account of these problems while discussing each group.

This section also suggests possible solutions for environmental problems.

TEACHING METHODOLOGIES

Teaching methodologies to be responsive to the needs of a particular discipline should take into account the nature of the discipline itself, type and level of teaching objectives, learner characteristics, psychology of learning and teaching processes, and the resources available. The ultimate criteria of effectiveness of teaching methodologies refers to the extent of success in

realising the stipulated objectives. It is now an established fact that the same objectives can be achieved through more than one teaching methodology - obviously, teaching methodologies preclude prescription. The teaching methodologies included in this section are, therefore, suggestive. It is the teaching situation and ingenuity of the teacher which determines selection of specific teaching methodology at a particular point of instructional time.

This section of the module has been divided into subsections. The first section briefly outlines determinants of the teaching methodology. It is followed by subsections on specific teaching methodologies -- investigatory, clarifying strategies, simulated exercises and role playing, centres of interest, case-study, etc.

ACTIVITIES AND EXPERIMENTS FOR TEACHING/LEARNING THE ENVIRONMENTAL DIMENSION IN SOCIAL SCIENCE SUBJECTS IN SECONDARY SCHOOLS

EE is a problem-solving approach. Its teaching/learning is meaningful only when the acquired knowledge and skills are helpful in dealing with real life situations. These may be achieved by including such activities and experiments that will enable the students to make decisions or to choose between alternatives for solutions of the environmental problems.

The suggested activities and experiments in this module are only examples to help pre-service teachers to make teaching/learning in EE more meaningful. Similar activities may be designed to suit the local needs and the comprehension level of the students.

Activities and experiments in this module are based on the contents of chapters 3, 4 and 5 dealing with the need and basis of EE, essential knowledge about the environment and its problems respectively. Mainly three kinds of activities have been suggested in this chapter - questions and answers, class discussion and project work including collection of information from primary and secondary sources, processing and preparation of reports followed by class discussion, exhibition or taking suitable action.

STRATEGIES FOR PLANNING, DEVELOPMENT, IMPLEMENTATION, MANAGEMENT AND EVALUATION OF THE ENVIRONMENTAL DIMENSION OF SECONDARY SCHOOL SOCIAL STUDIES CURRICULUM

Curriculum development is a process of translating educational goals into practice. Like any other curricular area, EE curriculum requires appropriate strategies to plan, develop, implement, manage and evaluate the realisation of goals of EE.

EE is not a separate discipline but is an approach. It draws its content from different disciplines. For example, many social

science subjects such as geography, history, economics, political science and sociology include some aspects of the environment in their content areas. Topics like study of population, human settlements, food, water, diseases, poverty, degradation and depletion of various resources and conservation of resources have been parts of the content of different subject areas.

EE curriculum can be organised in two ways. Either it can follow an interdisciplinary (as single subject) model or multidisciplinary (infused with different subjects) model. Depending upon the existing structure of the school curriculum, either of the two models can be selected to provide an environmental dimension. However, it is felt that the infusion model of EE is more suitable for the primary level as it follows on an integrated approach. At the secondary level, an interdisciplinary approach seems to be more appropriate. However, it would be worth while providing an environmental dimension to all the social science subjects, even if the other approach is preferred.

Curriculum planning and development involves the following stages:

(a) operationalising EE general goals into intermediate sub-goals and objectives;

(b) delimiting curriculum scope (extent of coverage in terms of objectives -- cognitive, affective and psychomotor) and sequence (planning elements gradewise);

(c) developing EE curriculum blueprint following three-dimensional model based on goal levels, grade levels and across relevant disciplines;

(d) selecting and defining contents;

(e) identifying teaching strategies and instructional activities.

The challenge of EE lies in its implementation. There are a number of constraints against such implementation and its success would depend on strong support from school authorities, educational planners, policy-makers, administrators and others who are responsible for the education system as well as the community.

In the first place the EE curriculum has to be approved by the professional authorities, comprising of the State/national education offices, community leadership, parents and specialists. The curriculum has to be accepted by those responsible for its implementation such as the administrators, supervisors, teaching staff and the students. In this context it is needless to mention that success of EE and its acceptance in the classroom would depend greatly on the nature and amount of preparation which has preceded the implementation stage, ie, availability of curriculum

material and training of personnel. Besides, the role of policy-makers and teacher supervisors are also crucial since they are responsible for providing facilities as well as opportunities for innovations in EE in the schools. Curriculum implementation involves three phases:

1. Recognition and approval of EE curriculum. EE curriculum has to be recognised and approved by the professional authorities and the community.

2. Identification of constraints and efforts for their removal. In the second phase, major constraints have to be identified and necessary support should be provided by the school and the education system to remove them.

3. Maintenance of successful implementation process. Mere removal of constraint is not enough for the smooth running of the EE programme. Constant support from the school, the educational system and the community is required.

A functional infrastructure is necessary for the management of the EE curriculum, which can be an independent unit or an integral organ of the existing infrastructure.

For efficient management of EE curriculum, it is necessary to have coordination among various levels of policy-making, planning and executing bodies. In general, policies are framed at the national level while planning and implementation decisions are taken at the State level. The lower administrative levels such as districts are responsible for execution. It is at this level that constraints are identified. It is expected that higher authorities will help in removing these constraints for the successful implementation of EE curriculum.

Evaluation in EE should include (a) evaluation of EE objectives; (b) evaluation of EE goals; (c) evaluation of instructional effectiveness in EE; and (d) evaluation of concomitant variables such as functionality of the curriculum material, pupil and faculty enthusiasm and effectiveness of teacher training programmes.

SUGGESTED TOPICS FOR DISCUSSION IN WORKING GROUPS

1. What are the specific objectives for in-service training of social science teachers and supervisors in EE for secondary schools?

2. What is the essential knowledge about environment for secondary school social science teachers and supervisors?

Discussion

1. The participants discussed the methods of developing EE curriculum for secondary schools. They agreed that EE curriculum

should be independent of other subjects. Moreover, EE concepts should be infused in other subjects.

2. The participants discussed the possibility of preparing a text-book in EE entitled 'Man and Environment'.

8.2 EE: Module for in-service training of social science teachers and supervisors for secondary school

This module was summarised and presented to the workshop in Arabic by Dr Kadhim Al-Khalili, Assistant Professor, Arabian Gulf University.

A. Resume

INTRODUCTION

This module is written as an in-service training module for the purpose of assisting individuals and institutions interested in the in-servicing of social science teachers and supervisors in EE for secondary schools.

The module covers many aspects of EE thought necessary for secondary level instruction. The content includes the history and philosophy of EE; its goals, objectives and guiding principles; essential knowledge about the environment and its major problems and possible solutions; appropriate teaching methodologies with a sample selection of activities and experiments; the evaluation of the teaching and learning; the planning and implementation strategies for in-service programmes. A glossary is included to assist those who might not have had the opportunity to study the natural science courses or to reinforce the knowledge of those already familiar with such concepts. An extensive bibliography has been prepared and we record here our full acknowledgement to the copyright holders and publishers whose books have been referred to.

More detail is contained in the chapters dealing with essential knowledge and problems of the environmental and instructional strategies and activities in EE. It was thought that these are important and useful to teachers and supervisors in secondary schools.

ENVIRONMENTAL EDUCATION

This chapter provides the rationale for EE and outlines the events that led to the present status of EE and will serve as a bond for the fostering of attitudes and values promoted by EE and the development of problem solving skills.

The social science teachers and supervisors should emphasize the following points through EE:

1. Economic principles should be based on cooperation rather than competition.

2. Social goals should be re-oriented towards preparing the citizenry for the changes in attitudes and relationships which are necessary for the smooth progress of a rapidly developing economy, as in developing societies, or the maintenance of a developed economy, as in industrial societies, to keep in harmony with the environment.

3. Political strategies.

4. Religious beliefs and personal ethics.

ESENTIAL KNOWLEDGE ABOUT ENVIRONMENT FOR SECONDARY SCHOOL SOCIAL SCIENCE TEACHERS AND SUPERVISORS

This chapter provides the knowledge component considered necessary for secondary school social science teachers and supervisors but essential as a base for the building of skills and the fostering of attitudes and values promoted by EE.

The chapter will explain the concept of the 'Environment' and then treat at a basic level the influence of mankind in the four spheres that comprise the environment. These are:

1. The atmosphere - the layer of air that surrounds the earth.

2. The hydrosphere - the waters of the earth's surface.

3. The lithosphere - the rocks and soils that make up the earth's crust.

4. The biosphere - the zone where all living things are found.

ESSENTIAL KNOWLEDGE FOR SECONDARY SCHOOL SOCIAL SCIENCE TEACHERS AND SUPERVISORS ABOUT THE PROBLEMS OF THE ENVIRONMENT AND MEANS AND WAYS FOR THEIR SOLUTION AND PREVENTION

This chapter describes the main problems of the environment with reference to actual examples and suggests approaches to their control, prevention and possible solution. Such background information adds to the knowledge component which the social science teacher and supervisor can use to promote the attitudes and values in making decisions that contribute to the improvement and protection of the environment of which we are an important part and in which society functions.

Types of environmental problems are classified from several points of view. These are as follows:

1. Physical, economic and social consequences;
2. Geographical scale;
3. Time-scale;
4. Social, economic systems.

Each one of the problems is discussed in detail in the module.

TEACHING METHODOLOGIES IN EE WITH SPECIAL EMPHASIS ON PROBLEM SOLVING APPROACHES

This chapter focuses on teaching methodologies in EE with special emphasis on the problem solving approaches. A model of instruction and associated methodology is presented at the beginning of the chapter. The rest of the chapter expounds on the various components of the model as it relates to EE.

Advantages of problem-solving approach are as follows:

It allows for the use of different teaching techniques to solve a problem. It trains students to work individually and in groups. It helps them acquire skills of extracting information using equipment, planning and conducting interviews, discriminating against information collected and making conclusions. Solutions to problems require people who have developed a mental attitude that will allow them to make a choice of the most appropriate skills and solutions based on available facts and a critical analysis rather than based on personal opinion - who will learn to listen critically (constructively) to other people's ideas and to change their own attitude if necessary. The problem solving approach is two-pronged: the discussion technique and the project technique.

Problem solving approaches can utilise some or all of the following teaching methods:

1. The lecture
2. Outdoor education method
3. Methods of autonomous student or group investigation, evaluation and action planning
4. Values clarification
5. Instructional simulations and games
6. Community resource use.

SUGGESTED EXPERIMENTS AND ACTIVITIES TO FACILITATE THE TEACHING AND LEARNING OF THE ENVIRONMENTAL DIMENSION OF SECONDARY SCHOOL SOCIAL SCIENCE SUBJECTS

This chapter outlines some experiments and activities to facilitate the teaching and learning of the environmental dimension of secondary school social science subjects. Emphasis is given to the continuous development of certain basic skills such as reading, questioning, communicating and the interpersonal/social skills. The use of groups on a cooperative basis is encouraged using the problem solving approaches, with visual aids and resource personnel wherever possible.

EVALUATION IN EE

The success or failure of any EE programme depends on continual on-going evaluation, carefully planned and implemented. Evaluation is needed so as to know what to improve, and how to improve it.

The evaluation procedures selected for the different components of the curriculum must be flexible and responsive to the changing emphasis on programme objectives as well as to the great variety of educational institutions.

Curriculum evaluation must be both formative and summative in nature. It must focus on the consistency of all elements and their interrelationships.

There are three types of evaluation techniques: process evaluation, formal, and informal evaluations.

So, generally, EE programmes need to continually be reappraised so that revisions can be undertaken promptly and with careful planning for both current and future EE programmes, plans and projects. By providing insights into the process of EE, evaluation can be a force in the improvement of environmental quality.

SUGGESTED TOPICS FOR DISCUSSION IN WORKING GROUPS

1. How do you implement any one of the EE modules?

2. How do you improve and evaluate the standard of intermediate school teachers for teaching environmental subjects?

3. Are the examples and models suggested in the module suitable for the Gulf States?

4. Are the EE programmes intended for the teacher and the student only? Can it be used outside the school?

5. What is the role of mass media in promoting EE programme?

B. Discussion

1. The discussion emphasised the role of evaluation in EE and the importance of using various methods in evaluation.

2. The teacher should use new methods in teaching EE, especially the problem-solving method.

3. Use a common programme to train social science teachers and supervisors for intermediate and secondary schools.

4. The ministry of education should coordinate with other concerned institutions in enhancing EE programmes.

IX. EE IN THE LIGHT OF TBILISI CONFERENCE

The above paper was presented by Mr Khalid Fakhro, and a summary of the paper is given in appendix 10.

The discussion on the paper is summarised as follows:

1. Methods of incorporating EE concepts into the curriculum of different subjects was discussed. The participants agreed on training specialists in EE so as to help in infusing environmental concepts into the curriculum.

2. The relationship between the formal and non-formal education and EE.

The participants considered EE as a good tool for building a relationship between formal and non-formal education.

3. The relationship between educational institutions and environmental protection institutions concerning EE.

There should be strong coordination among the above mentioned institutions in preparing EE programmes.

4. Environment awareness for technicians and others. A special programme should be prepared for those people who do not have much formal education.

APPENDICES

1. Agenda
2. Day-to-day programme
3. List of documents
4. List of presenters
5. Presentation on UNESCO-UNEP, IEEP
6. Opening and closing speeches
7. List of participants
8. Country reports
9. Members of the organising committee
10. Summary of EE in the light of Tbilisi Conference

APPENDIX I

AGENDA

1. Opening of the Workshop
2. Presentation on UNESCO-UNEP IEEP
3. Country reports
4. Training of teachers and supervisors for primary schools in EE:

(a) EE: Module for pre-service training of teachers and supervisors for elementary schools;

(b) EE: Module for in-service training of teachers and supervisors for elementary schools.

5. Training of science teachers and supervisors for secondary schools in EE:

(a) EE: Module for in-service training of science teachers and supervisors for secondary schools.

6. Training of social science teachers and supervisors for secondary schools in EE:

(a) EE: Module for pre-service training of social science teachers and supervisors for secondary schools;

(b) EE: Module for in-service training of social science teachers and supervisors for secondary schools.

APPENIX 2

DAY-TO-DAY PROGRAMME

This sub-regional workshop on teacher training in EE for the Arab states was organised by Bahrain National Commission for Education, Science and Culture in collaboration with United Schools International (USI) Arab Regional Office and in cooperation with UNESCO-UNEP International EE Programme (IEEP).

The workshop was organised from 25 to 30 January 1986 in the premises of Delmon Hotel, Manama, Bahrain.

Saturday 25 January 1986

0800-0900 hrs	Registration
0900-1100 hrs	Opening session - speeches
1130-1230 hrs	Presentation on UNESCO-UNEP IEEP
1500-1700 hrs	Presentation of country reports

Sunday 26 January 1986

0830-1100 hrs	Lecture discussion I: EE Module for pre-service training of teachers and supervisors for primary schools
1130-1230 hrs & 1500-1700 hrs	Lecture discussion II: EE Module for in-service training of teachers and supervisors for primary schools

Monday 27 January 1986

0830-1100 hrs	Lecture discussion III: EE Module for pre-service training of science teachers and supervisors for secondary schools.
1130-1230 hrs	Lecture discussion IV: EE Module for in-service training of science teachers and supervisors for secondary schools.

Tuesday 28 January 1986

0830-1100 hrs	Lecture discussion V: EE Module for pre-service training of social science teachers and supervisors for secondary schools.
1130-1230 hrs	Lecture discussion VI: EE Module for in-service training of social science teachers and supervisors for secondary schools.

Wednesday 29 January 1986

0830-1230 hrs	Excursion
1500-1700 hrs	Suggested methods and institutions for local adaptation of the module.

Thursday 30 January 1986

0830-1230 hrs	Study of draft and final report
1500-1700 hrs	Closing session.

APPENDIX 3

LIST OF DOCUMENTS

A. Documents presented are:

Environmental Education: Module for Pre-service Training of Teachers and Supervisors for Primary Schools, Unesco, 1983. EE Series No. 5.

Environmental Education: Module for In-service Training of Teachers and Supervisors for Primary Schools, Unesco, 1985. EE Series No. 6.

Environmental Education: Module for In-Service Training of Science Teachers and Supervisors for Secondary Schools, Unesco, 1983. EE Series No. 8.

Environmental Education: Module for Pre-service Training of Social Science Teachers and Supervisors for Secondary Schools, Unesco, 1983. EE Series No. 9.

Environmental Education: Module for In-service Training of Social Science Teachers and Supervisors for Intermediate Schools, Unesco, 1983. EE Series No. 10.

B. References in EE:

1. Strategies for developing an EE curriculum
2. Strategies for training teachers in the field of EE
3. Trends in EE
4. EE in the light of Tbilisi Conference
5. Final report, Tbilisi Conference
6. Environmental problems, ENVED--4
7. Final report of EE expert meeting held in Kuwait
8. Comparative survey of curriculum development in EE.

APPENDIX 4

LIST OF PRESENTERS

Name	Position	Country
1. Dr Rafica Hammoud	Education Dept., University College of Art, Science & Education	Bahrain
2. Dr Ismail Madany	Chemistry Section Coordinator Gulf Polytechnic	Bahrain
3. Mr Khalid Fakhroo	Environmental Protection Committee	Bahrain
4. Dr Kadhim Al-Khalili	Ecologist Arabian Gulf University	Bahrain
5. Dr Abdul Majid Abdulla	Information Asst., UNEP, West Asia Regional Office	Bahrain
6. Mrs Khatoon Sangoor	Specialist Ministry of Education	Bahrain
7. Dr Abdul Ghafoor Ghaznawi	Environmental Education Programme Specialist, Unesco	Paris

APPENDIX 5

PRESENTATION ON UNESCO-UNEP INTERNATIONAL EE PROGRAMME

Dr Abdul Ghafoor Ghaznawi
Programme Specialist in EE
UNESCO, Paris

Background

The Declaration of the United Nations Conference on Human Environment organised in Stockholm, Sweden, 1972, proclaimed: "To defend and improve the environment for present and future generations has become an imperative goal for mankind."

Recommendation 96 of the same Conference stated that "the Secretary General, the organisations of the United Nations System, especially the United Nations Educational, Scientific and Cultural Organisation, and the other international agencies concerned, should, after consultation and agreement, take the necessary steps to establish an international programme in environmental education, interdisciplinary in approach, in school and out of school, encompassing all levels of education and directed towards the general public, in particular the ordinary citizen living in rural and urban areas, youth and adults alike, with a view to educating him as to the simple steps he might take, within his means, to manage and control his environment." Thus need for environmental education.

Responding to the above, UNESCO and UNEP launched in 1975 the UNESCO-UNEP International Environmental Education Programme (IEEP).

Goals

The general objective of IEEP is to promote implementation of the Recommendations of the Tbilisi Intergovernmental Conference on Environmental Education (1977) through encouraging and assisting governments, national, regional, and international institutions to incorporate environmental education into formal and nonformal education systems and programmes in order to make people aware of the nature of the relationship between man and the environment on which he depends; impart knowledge and skills to understand and solve environment- and development-related problems; and enable people to acquire attitudes and motivations leading to sound decisions and actions for for the protection and improvement of the environment and its quality.

In this context, the emphasis of IEEP's current activities is on (i) the incorporation of EE into the teaching/learning processes at primary and secondary schools, pre-service and in-service teacher education, university general education, technical and vocational education and nonformal education; (ii) local adaptation and use of EE materials developed under IEEP; and (iii) fostering international cooperation in this field.

Results

The results of the IEEP in the last ten years may be summarised as follows:

a) the development of a general awareness of the necessity of EE;

b) the development of concepts and methodological approaches in this field; and

c) initiating efforts to incorporate an EE dimension into the educational processes of Member States.

Activities

The following activities undertaken at international, regional, sub-regional and national levels have led to the above-mentioned results. These activities are grouped under Exchange of Information, Development of EE Goals, Objectives, Guiding Principles and Concepts, Research and Experimentation, Training of Personnel and International Cooperation.

I. Exchange of Information

This activity has been fostered through the publication and dissemination of the quarterly newsletter **Connect**, in five languages, to about 13,000 professionals and institutions. Similarly, directories on institutions and EE programmes as well as glossary of EE terms have been prepared and disseminated. Documents such as Trends in EE, numerous reports of EE meetings organised under IEEP, copies of EE documents prepared in the Environmental Education Series of IEEP have been distributed free of charge to interested institutions and professionals, and to participants of all meetings organised under IEEP. Furthermore, in all training workshops and seminars organised under IEEP, participants have been requested to prepare and present country reports, as done in this Workshop, on the development of EE in their respective countries. Resumes of these country reports are reflected in **Connect** for informing a wider audience on the development of EE in the participating Member States. Similarly, a network of institutions active in EE development is being constituted.

II. Development of EE Goals, Objectives, Guiding Principles and Concepts

IEEP has fostered the development of EE goals, objectives, guiding principles and concepts through the preparation and organisation of an International Workshop on EE in 1975 in Belgrade, Regional Expert Meetings in Africa, Asia, Latin America and the Caribbean, Arab States and Europe during 1976-1977, and the Intergovernmental Conference in Environmental Education, Tbilisi, USSR, October 1977.

A concrete outcome which could be considered a landmark in the development of EE in the '70s was the formulation of EE goals, objectives and guiding principles at the Tbilisi Conference which has served as a common ground for almost all international undertakings and most national activities in EE.

Under the umbrella of the EE goals, objectives and guiding principles, strategies for curriculum development and teacher training, guidelines for developing non-formal EE, process for pre-service teacher training, sourcebooks for formal and non-formal EE, 22 documents under the Environmental Education Series have been developed. These have led to the development of EE concepts, methods and evaluation.

Through the Bahrain National Commission for UNESCO, IEEP has provided you with a number of the above-mentioned documents which have been prepared in collaboration with experienced educational institutions around the world.

III. Research and Experimentation

IEEP's research and experimentation activities have involved an international survey of EE needs and priorities; surveys on curriculum development and teacher training in EE, survey and studies on the incorporation of EE into university general education; studies on the development of guidelines for the incorporation of EE into non-formal education and into technical and vocational education. Similarly, IEEP has supported 31 pilot, experimental and research projects in formal and non-formal environmental education. Furthermore IEEP has supported the local adaptation of selected EE documents at national level. In general, the impact of implementation of pilot projects in EE is long-lasting, because it involves local educators for 2 to 3 years, to find out about their priority needs in EE, and accordingly design and experiment materials and methods that would suit their environmental conditions and fit their educational systems.

IV. Training of Personnel

The current Workshop is concerned with teacher training in EE. It seems relevant to elaborate, in somewhat details, the

training activities of IEEP. EE cuts across all subjects horizontally in one level and vertically at different levels. Furthermore, EE advocates problem-solving approach in its teaching/learning. Thus the need for incorporating EE into existing curriculum and into pre-service and in-service teacher training programmes.

The training of personnel in EE was identified as a priority need in the International Survey of EE Needs and Priorities done in 86 Member States in 1976. The Intergovernmental Conference on EE in Tbilisi (1977) emphasized and elaborated the training of personnel through recommendations Nos. 17 and 18 addressed to Member States as follows:

- Environmental sciences and environmental education be included in curricula for pre-service teacher education;

- the staff of teacher education institutions be assisted in this respect; and

- teachers should get appropriate environmental training relating to the area, either urban or rural, where they are going to work;

- they take necessary steps to make in-service training of teachers in EE available for all who need it;

- the implementation and development of in-service training, including practical training, in EE be made in close cooperation with professional organisations of teachers, both at international and national levels;

- in-service training take account of the area, either urban or rural, where the teachers are working.

The Conference further recommended to UNESCO to promote the dissemination of ideas, programmes and instructional material relevant to the promotion of in-service training in environmental education.

IEEP's training of personnel in environmental education, in the context of the implementation of the above Recommendation, has focused on the following:

1) to orient key educational personnel towards EE philosophy, goals, objectives, guiding principles and strategies for its development.

IEEP's training activities in EE at international, regional, subregional and national levels have focused on key personnel such as curriculum developers, teacher educators, educational planners, educational administrators and supervisors as well as on personnel in rural development and adult education projects for the purpose of their orientation for a better understanding of the philosophy,

goals and objectives of EE as well as becoming familiar with strategies needed for EE development for primary and secondary schools, for pre-service and in-service teachers training and for its incorporation into nonformal education.

It is in this context that one international training course, 5 regional and 5 sub-regional training seminars as well as 37 national training workshops in the Arab States, Asia, Africa, Latin America and the Caribbean, and Europe have been organised by IEEP.

2) to prepare EE training materials

IEEP has prepared the document on Strategies for Teacher Training in EE and the six teacher training modules which are serving as working documents of this Workshop. These teacher training modules were prepared in collaboration with teams of educators from:

1) The School of Education of the University of West Indies in Jamaica and from the Curriculum Department of the Ministry of Education in Jamaica;

ii) The Science Centre of the University of the Philippines;

iii) Faculty of Education of Monash University and the South Australian College of Advanced Education, Australia;

iv) National Council of Educational Research and Training, New Delhi, India; and

v) Kenya Science Teachers College, Nairobi, Kenya.

Each of the above modules was sent to about 10-20 professionals for comments and critiques. All of the above modules were subjected to critical examination and study by groups of teacher educators at two Subregional Workshops on Teacher Training in Environmental Education organised in India (March 1983) and Jamaica (July 1983).

Similarly, in collaboration with numerous educational institutions, IEEP has prepared EE training documents for an International Training Course, five regional training workshops, and five subregional training seminars. IEEP has also provided resource and reference materials for 37 Member States for preparation of EE training materials by national educational institutions for 37 national training workshops in environmental education for key educational personnel.

3) to involve national educational institutions in EE training

All of IEEP training activities at international, regional and subregional levels have been established in institutions which present potentialities and promises to serve in the long run as centres of excellence in EE.

The selection of such institutions has been based on previous activities undertaken. For example, the School of Education of the University of West Indies in Jamaica served in the preparation of working documents for the Subregional Training Workshop in EE (Antigua, 1980), provided consultants for the same workshop, prepared the EE Module for Pre-service Training of Teachers and Supervisors for Primary Schools.

On the basis of the above experience and professional and institutional interest and commitment, the Subregional Workshop on Teacher Training in EE for the Caribbean was organised from 18 to 29 July 1983 in the same university.

Similarly, the National Council of Educational Research and Training (NCERT), New Delhi, India, had served in the implementation of two EE pilot projects, prepared the two documents: EE Module for In-service Training of Teachers and Supervisors for Primary Schools, and EE Module for Pre-service Training of Social Science Teachers and Supervisors for Secondary Schools. Thus, the Subregional Workshop on Teacher Training in EE for Asia was organised at NCERT from 3 to 16 March 1983.

In the same way, EE Module for In-service Training of Social Science Teachers and Supervisors for Secondary Schools was prepared at Kenya Science Teachers College (KSCT), and thus the Subregional Workshop on Teacher Training in EE for East Africa is scheduled to be organised at Kenya Science Teachers College in April 1986.

The International Training Course in EE was organised in Czechoslovakia from 1 to 28 September 1982 on the basis of earlier experience and input in the implementation of a pilot project in EE, and the Subregional Workshop in Teacher Training in EE for Europe, 13-17 October 1980.

Simiarly, two chapters of the Sourcebook in non-formal EE were written at Universiti Pertanian Malaysia and that was the major reason for having the Subregional Training Workshop on non-formal EE (18-22 November 1985) organised at the same university. The local adaptation of EE Module for In-service Training of Science Teachers and Supervisors for Secondary Schools was undertaken here, in Bahrain, by the USI, in collaboration with the Bahrain National Commission for UNESCO, and that has seeded the organisation of the current Subregional Workshop on Teacher Training in EE for the Arab States here, in Bahrain.

The institutionalisation of training activities, such as the above, mobilize the already gained experience of the concerned institution and its professionals in the service of other Member States and enhances commitment in the further development of EE in the same institution.

Furthermore, implementing training activities such as the above will take at least a year of preparation, implementation, and printing and dissemination of final reports, etc. In this process, numerous professionals of the concerned institution get involved in the preparation of documents, and their presentation at the meeting/seminar/workshop. Others attend the meeting and get orientation on the development of EE.

In the final analysis, the preparation and organisation of training activities such as the above provide opportunities for the development of institutional and professional responsibilities, and competences in the development of EE. It is envisaged that such committed educational institutions may become Centres of Excellence for training and curriculum development in formal and non-formal EE.

4) to enhance networking in EE training

IEEP enhances exchange of information and experience in EE as mentioned earlier. With respect to training in EE, there is a limited number of institutions, professionals and participants that have been involved in the preparation of training materials and documents, and the organisation of training activities at international, regional and subregional levels. These institutions and professionals are active in EE development and thus IEEP has made efforts to keep as close as possible a contact with them, and has enhanced contact among them as well. In this context, all training documents and reports are regularly distributed to these institutions and professionals. Furthermore, a number of them get involved in the preparation of EE training documents, and some are contacted for comments and critiques on drafts of new documents. These institutions and professionals form an EE training network.

V. International cooperation

Most of the activities implemented by IEEP have an international cooperation dimension. Specifically, international cooperation has been enhanced through fielding advisory missions concerning EE training activities, curriculum development and pilot projects. Similarly, nine EE regional and international meetings and conferences organised by governmental and non-governmental organisations have been supported by IEEP.

APPENDIX 6 - A

OPENING SPEECHES

Mr Rashid Sulaybikh
Secretary General, Bahrain National Commission

Your Excellency Dr Ali Fakhro, Minister of Education, Chairman, Bahrain National Commission for Education, Science and Culture,
Your Excellency Dr Hamad Al-Sulaiti, Deputy, Ministry of Education,
Distinguished Delegates,
Ladies and Gentlemen,

Bahrain National Commission for Education, Science and Culture, in collaboration with USI Arab Regional Office, have previously organised two workshops in EE. This workshop is the third in the series on EE, and it is going to be an experiment that will provide us with significant practical results. In this respect, we will depend on the reports of the participating countries, the teaching modules in EE issued by UNESCO, and the research of the experts that will be presented in the Workshop.

I remember that four years ago, His Excellency the Minister of Education, Dr Ali Fakhro, said in a speech delivered at the American Bahrain School in a meeting on environment and pollution, "We have not even scratched the surface of the problem." I think that if the Ministry of Education incorporates EE into its educational programmes, then it has really scratched the surface of the problem and might even penetrate the surface. This step is the right start for tackling this problem. But how deep is this problem?

I believe that some subjects should not be taught only to certain educational levels, but it should be given to all levels as a continuous process. This is the only way in which we can produce positive results. I mean in this respect that EE is one of those subjects that must be given to the students from their first year in school, like Quranic studies, morals, and social tradition. The students at the beginning will copy what they learn in the school without awareness of its significance and importance, but as they grow up this will become like a natural behaviour and part of their personality and identity.

Environmental education should not only be taught to students in schools, but it is a continuous education process, both in the school and out of it.

The reckless exploitation of the natural resources by unplanned consumption, and technological development, resulted in environ-

mental imbalance and permanent damage to our environment, such as land, air and sea pollution. This situation led to the awareness of United Nations and its agencies to take action for solving this problem. The first major step in this direction was the conference held in Stockholm in 1972, and was attended by Dr Ali Fakhro, the Minister of Health at that time.

UNESCO gave special attention to the subject of EE and this was evident in their studies and programmes in the 1970s. Moreover, UNESCO in collaboration with UNEP, organised an international conference in Tbilisi in 1977 on EE. This conference culminated the first phase of IEEP, laying the basis for the development of EE at the international level as well as strategies for the advancement of EE at the national level.

UNESCO has prepared a series of educational modules in EE. These are kept for the use of the Member States. They will also be presented in this Workshop and discussed by the participants, as well as the reports of the participating countries.

Your Excellency,

Your presence at the opening session of the Workshop reflects your support and cooperation to our activities, which are all directed towards developing education in general.

On your behalf, Chairman of the Bahrain National Commission for Education, Science and Culture, I would like to thank UNESCO for their technical and financial support in this Workshop, Mr Jiya Lal Jain, Secretary General of USI, and all those who are going to present the educational modules in EE, and in particular:

1. Dr Rafica Hammoud, Dept of Education, UCB;
2. Mrs Khatoon Sangoor, Specialist, Ministry of Education;
3. Mr Khalid Fakhroo, Environmental Protection Committee;
4. Dr Kadhim Al-Khalili, Ecologist, Arabian Gulf University;
5. Dr Abdul Majid Abdulla, Information Assistant, UNEP, West Asia Regional Office; and
6. Dr Ismail M Al-Madany, Chemistry section coordinator, Gulf Polytechnic.

I would also like to thank all the guests for attending the opening session and the delegates for participating in this Workshop. I wish you all the best in this Workshop and hope that the results of your work will be reflected in the advancement and development of our curriculum.

APPENDIX 6 - B

Mr Jiya Lal Jain
Secretary General, United Schools International

His Excellency the Education Minister, Your Excellencies, distinguished guests, hon'ble participants, and Mr Abdul Ghafoor Ghaznawi our friend from UNESCO,

It affords me particular pleasure to be associated with this subregional workshop on teacher training in environmental education, organised by the Bahrain National Commission for Education, Science and Culture, in collaboration with USI Arab Regional Office. I am appreciative of UNESCO's support which has made this workshop possible.

USI has been privileged to be associated with the Bahrain National Commission for Education, Science and Culture, under the leadership of its dynamic Secretary General, from the early 1980s when it conducted the first Arab regional seminar on teaching about the UN and UNESCO in Bahrain. It was the beginning of an enduring and happy relationship which I am pleased to note has grown to our mutual satisfaction.

Non-governmental organisations and agencies can do much good to the cause of education, especially environmental education where success to a large extent depends on generating popular awareness of the issues involved.

This workshop is the third in the series on EE. Earlier USI organised two seminars in Bahrain to study, discuss, and adapt the UNESCO modules for in-service training of science teachers and supervisors in EE for schools. The module was translated and tried in Bahrain in 1984.

This workshop is fortunate to have the participation of eminent speakers in the field and participants from many countries in the Arabian Gulf. These discussions will be useful for teachers and supervisors in EE which has assumed added significance in view of the worsening environmental situation the world over.

The Greenpeace Movement and the Rainbow Warrior affair are still fresh in our memories. The move now, as you are aware, is on to have the Antarctic declared an environmental park undisturbed by scientific experiments and armaments rivalry. It augurs well for the movement to have young people champion it at great personal risk.

Every workshop of this sort creates its own ripples in the great stream of any project which starts as small trickles and gather momentum with the passage of time. I am hopeful a day will dawn when the environmental issue will be on the lips of the common man.

As organisers of this workshop we are grateful to HE Dr Ali Fakhro, the dynamic Minister of Education of Bahrain, for his support and patronage of this workshop. His enthusiasm for environmental issues is an inspiration to us.

I welcome each one of you to this workshop and hope you will have your environmental awareness both heightened and deepened before you leave. Thank you.

APPENDIX 6 - C

Dr Abdul Ghafoor Ghaznawi
Programme Specialist in EE, UNESCO, Paris

Your Excellency,
Distinguished guests,
Ladies and Gentlemen,

It is an honour and pleasure for me to welcome you on behalf of Unesco to the Subregional Workshop on Teacher Training in EE for the Arab States. This workshop is organised under Unesco contract, by Bahrain National Commission for Unesco in collaboration with USI Arab Regional Office and in cooperation with Unesco-UNEP International Environmental Education Programme (IEEP). The workshop is conceived in the context of Unesco's Programme and Budget for 1984-85 (paragraph 10922).

The objectives of the workshop are to: (a) familiarise participants with a series of modules on teacher training in EE developed under IEEP, (b) identify institutions for possible local adaptation of the modules in the participating Member States, (c) identify activities and documents on teacher training in EE to be developed by IEEP, and (d) enhance exchange of information and experience among participating Member States in this field.

The following documents prepared by IEEP on teacher training in EE will be presented and discussed at the workshop:

1. EE: Module for Pre-service Training of Teachers and Supervisors for Primary Schools. This document was prepared in collaboration with a team of teacher educators and curriculum developers from the University of West Indies and the Ministry of Education of Jamaica.

2. EE: Module for In-service Training of Teachers and Supervisors for Primary Schools. This document was prepared by a team of teacher educators at the National Council of Educational Research and Training (NCERT), New Delhi, India.

3. EE: Module for Pre-service Training of Science Teachers and Supervisors for Secondary Schools. This document was prepared by a team of teacher educators from Monash University and South Australian College of Higher Education in Australia.

4. EE: Module for In-service Training of Science Teachers and Supervisors for Secondary Schools. This document was prepared by a team of teacher educators at the Science Education Institute of the University of Philippines.

5. EE: Module for Pre-service Training of Social Science Teachers and Supervisors for Secondary Schools. This document was prepared by a team of teacher educators at NCERT in New Delhi.

6. EE: Module for In-service Training of Social Science Teachers and Supervisors for Secondary Schools. This document was prepared by a team of teacher educators at Kenya Science Teachers College in Nairobi.

I may add that in the preparation process, the drafts of the above six teacher training modules were circulated to numerous professionals and institutions for comments and critiques in the light of which they were revised. Furthermore, the modules were tested in two Subregional Workshops on Teacher Training in EE organised in March 1983 in New Delhi (India), and in July 1983 in Jamaica. In the light of comments and critiques of these workshops, the modules were further revised and then printed. Thus, we are pleased to provide the participants of the workshop, through these modules, with a pool of experience and thinking of different teams of teacher educators from numerous institutions of higher education from different parts of the world on teacher training in EE.

Furthermore, for preparation for this workshop, the Bahrain National Commission has designated six experienced educators who have studied these modules and prepared their resumes which will be presented at the workshop.

In general, each of the above modules has the objectives to impart to its target group (a) an understanding of the philosophy, goals, objectives and history of the development of EE, (b) essential knowledge about the environment and its problems, (c) EE teaching methodologies and evaluation techniques for teaching/learning, and (d) strategies for curriculum development, teacher training and management in EE.

On behalf of Unesco, I should like to thank the Government of Bahrain for facilitating the organisation of this workshop.

I want to thank HE Dr Ali Fakhro, the Minister of Education, for his keen interest and support in the preparation and organisation of the workshop. I am grateful to the Bahrain National Commission for Unesco for hosting and organising the workshop in collaboration with Arab Regional Office of United Schools International.

Unesco hopes that the outcome of the workshop could lead in due course to the needed and timely educational renewal which is the incorporation of EE into teacher training, in the participating Member States, which could lead to improvement of the physical, biological and socio-cultural aspects of the environment for a better quality of life for present and future generations.

APPENDIX 6 - D

Dr Raja Gedeon
Deputy Director, UNEP Regional Office for West Asia

Your Excellency Dr Ali Fakhro,
Distinguished Delegates,
Ladies and Gentlemen,

On behalf of the Executive Director of UNEP, Dr Mostafa Kamal Tolba, and the Director and Regional Representative of UNEP Regional Office for West Asia, Mr Salih Osman, I would like to extend my warm welcome to you and wish you every success in this workshop.

Ladies and Gentlemen,

EE is one of the main objectives which UNEP endeavours to achieve. The Declaration of the United Nations Conference on Human Environment organised in Stockholm in 1972 proclaimed "to establish an international programme in EE, interdisciplinary in approach, in school and out of school, encompassing all levels of education and directed towards the general public, in particular the ordinary citizen living in rural and urban areas, youth and adult alike, with a view to educating him as to the simple steps he might take, within his means, to manage and control his environment."

In response to this recommendation, UNEP in collaboration with UNESCO launched the International Environmental Education Programme (IEEP) in 1975. The actions of the IEEP have centred successively on the following:

- the development of a general awareness of the necessity of EE;

- the development of concepts and methodological approaches in this vital field;

- efforts for incorporating an environmental dimension into the educational process of Member States.

In 1977, UNEP in cooperation with UNESCO organised the first Intergovernmental Conference on Environmental Education which was convened in the city of Tbilisi (USSR). One of its objectives was to determine the implications of the United Nations Conference on the Human Environment (1972) for education. It was the starting point for an international EE programme consistent with the wishes of all the Member States.

In 1982, UNEP issued a book, "Development Without Destruction," written by the Executive Director, Dr M K Tolba. A separate section of this book was particularly designated for EE. This highlights UNEP's great concern with EE.

Ladies and Gentlemen,

Over the past few years, Governments have shown an increasing awareness in their environment due to environmental catastrophes and degradation. This increasing awareness resulted in a pressing need for EE. Several countries, such as the United States, USSR, West Germany and United Kingdom, have already started involving EE into educational programmes.

Unfortunately, the Arab countries have no concern with such an important matter as EE. Attempts to include EE into educational programmes are limited and restricted within some text-books of science, geography and geology.

This Regional Seminar should focus on perceptual environmental problems which our countries face. No doubt that these problems are huge in number and multiplicated.

The main point in training teachers and supervisors for EE is to enable them to become thoroughly acquainted with these problems and to transfer them to the students in a simple and easy way. Simplifying environmental problems is of great importance since these problems are complicated and inter-connected. Of great importance is also using different ways and methods in explaining environmental concepts and problems.

I would like to underline some of the recommendations of the Intergovernmental Conference on EE held in Tbilisi (1977) for their importance:

- EE should be considered a continuous, life-long process, beginning at the pre-school level and continuing through all formal and non-formal stages.

- Assign a central role to the school in the whole system of EE and organise, for this purpose, systematic action in primary and secondary education.

- Expand environmental studies at the higher education level.

- Establish the means and methods for an in-service training policy which will provide the additional and, more specially, practical training that may be required by those who, in different capacities, exercise responsibility in the public or private sectors in regard to the environment.

- Educational and training institutions should have the necessary flexibility to enable them to include appropriate aspects of EE within existing curricula and to create new environmental curricula that meet the requirements of an interdisciplinary approach and methodology.

Ladies and Gentlemen,

The UNESCO-UNEP International EE Programme has issued a series of environmental publications (modules) for training teachers and supervisors at all levels of formal and informal educational process, including the pre-service and in-service training of teachers and instructors generally. It would be useful for the teachers and supervisors to make use of these publications as well as data and information provided by INFOTERRA - the International Referral System for Sources on Environmental Information, which was established by UNEP in 1977 and currently includes more than 100 Member States.

It should always be borne in mind that EE is a part of the continuous environmental awareness discipline.

Finally, I would like to express my deep appreciation and gratitude to the Bahrain National Commission for Education, Science and Culture, the Arab Regional Office of the United Schools International, and the United Nations Educational, Scientific and Cultural Organisation for preparing and organising the seminar.

APPENDIX 6 - E

CLOSING SPEECHES

Dr Abdul Ghafoor Ghaznawi
Programme Specialist in EE, UNESCO, Paris

Mr Secretary General of Bahrain National Commission,
Madame Chairman,
Mr Secretary General of USI,
Ladies and Gentlemen,

When I came from Unesco, Paris, at the beginning of the Workshop, I expressed at the opening session that the Workshop had the objectives to (i) familiarize participants with a series of teacher training modules in EE prepared under UNESCO-UNEP International EE Programme, (ii) identify methods and institutions for local adaptation of the modules, (iii) identify activities and documents on teacher training in EE to be developed by IEEP at subregional, regional and international levels.

Similarly, there was a time-table of work for the Workshop on the basis of which six resource persons made presentations at the Workshop.

Participants attended the plenary sessions, the group sessions, presented their country reports and made useful interventions during discussions.

A Drafting Committee after taking notes during the discussions worked in the evening to prepare the report of each day. These reports were put together which formed the draft final report which you have just studied and approved with certain amendments.

A Steering Committee said that the work of each day was covered and that of the next day was ready for implementation.

The members of the Bureau chaired the different sessions of the Workshop with coverage for implementing the time-table towards fulfilling the objectives of the Workshop.

Mr Jiya Lal Jain looked after the daily work of the Workshop and said that the morning and afternoon teas were on time just the way he printed the draft report on time.

Mr Rashid Sulaybikh, Secretary General of Bahrain National Commission, supervised the overall work of the Workshop in his friendly way and provided us with all the support and guidance needed.

Dr Hamad El Saliti, Deputy Minister of Education, honoured all of us by his generous hospitality at the luncheon yesterday.

H E Dr Ali Fakhro, Minister of Education, honoured us by his presence at the opening session. It was due to his keen interest and strong support that the Workshop was planned, prepared and implemented in Bahrain.

In this closing session I should like to thank very sincerely the participants, the resource persons, the Drafting Committee, the Steering Committee, the Bureau, Mr Jain, Mr Rashid Sulaybikh, Dr Hamad El Saliti, the Deputy Minister of Education, and H E Dr Ali Fakhro, Minister of Education, for their cooperation and support in implementing and concluding the Workshop successfully. My thanks also go to all others and the staff of the Ministry of Education that have helped us during the Workshop.

Let me add that although the Workshop is coming to a close, its real work is going to begin when you reach home and re-examine your teacher training programmes in the light of the discussions and presentations of the Workshop on EE.

Of course in this I wish every success.

APPENDIX 6 - F

Mr Rashid Sulaybikh
Secretary General, Bahrain National Commission

Dr Abdul Ghafoor Ghaznawi, Unesco Representative,
Mr Jiya Lal Jain, Secretary General, USI,
Ladies and Gentlemen,

I apologize for not being able to follow up your meetings. This is your last meeting, after continuous hard work and the excellent results you have got from the studies and the country reports.

I hope that this big effort will not stop here. I hope you will continue the study and research in this important subject and I am sure that Unesco will provide its experience and facility for the member countries. On this basis, I suggest that your national commission should ask the assistance of Unesco to organise similar workshops as a continuation of this workshop.

I am glad to inform you that the organising committee will provide you with certificate of participation in this workshop before the end of this closing session. This certificate will be very helpful to you in the future.

Finally, I would like to thank the chairman of the bureau of the workshop, the rapporteur, and everyone who made an effort to make this workshop a successful one.

APPENDIX 6 - G

Mr Jiya Lal Jain
Secretary General, USI

Mr Sulaybikh, Dr Abdul Ghafoor Ghaznawi, distinguished participants,

I am honoured to be present at the closing session of the sub-regional workshop on teacher training in environmental education for the Arab States.

Today is the last day of our workshop and it is a mixed occasion of joy and sorrow. Joy, because we have come to the successful conclusion of the workshop; and sorrow, because we will be departing after making friendship during our short stay.

I would like to thank Dr Abdul Ghafoor Ghaznawi, Unesco specialist, for his guidance, as also various officials of the Directorate of Public Relations of the Ministry of Education and National Commission. The report was prepared jointly by the Bahrain National Commission and USI Arab Regional Office. The report will be edited and produced both in Arabic and English shortly.

I would like to thank the guest speakers who ably presented the modules, the members of the bureau for their hard work, the participants for their interventions.

We made all possible efforts to make your stay comfortable and your participation interesting; still, there could be occasions when you found things not up to your expectations.

Hope and pray your return flight will be comfortable and you will go with happy memories of this visit. Bon voyage! and thank you once again for your participation. Perhaps our paths will cross again and we will meet in the near future.

APPENDIX 7

LIST OF PARTICIPANTS

Name	Position	Country
1. Dr Abdulrahman Ismail	Director of Teacher Training	Iraq
2. Mr Musa Mohamed Abdul Wali	Member of Agricultural Education, Directorate of Curricula, Ministry of Education	Jordan
3. Mr Mohamed Y. Al-Omar	Teacher, Teacher Training Institute	Kuwait
4. Mr Mohamed Shahie	Teacher	Oman
5. Mr Saad Al-Kubaisi	Chief of Training, Ministry of Education	Qatar
6. Mr Abdul Aziz Al-Moammar	Education Specialist General Directorate of Curricula, Ministry of Education	S. Arabia
7. Mrs Liwa'a Shaban	Director, Teacher Training Institute	Syria
8. Mr Salim Trais	Headmaster, Islamic Religious Institute	UAE
9. Mrs Khatoon Sangoor	Specialist Science Curricula	Bahrain
10. Mrs Wafaa Matar	Specialist, Science Curricula	Bahrain
11. Mr Zuhair Radi	Specialist, Science Curricula	Bahrain
12. Mr Abdul Aziz Al-Ganaid	Training Directorate	Bahrain
13. Mr Jassim Bunoful	Training Directorate	Bahrain
14. Mr Jaafar Saeed Hassan	Headmaster, Barbar Primary School	Bahrain

15. Khalifa Abdulla Ali	Headmaster, Busaiteen Primary School	Bahrain
16. Miss Fatima Al-Mansouri	Headmistres, Um Ayman Primary School	Bahrain
17. Miss Fawzia Al-Mahroos	Headmistress, Sanabis Primary School	Bahrain
18. Mrs Lulwa Daij Al-Khalifa	Specialist, Science Curricula	Bahrain
19. Mr Khalid Al-Khaja		Bahrain
20. Mr Shaker Khamden	Bahrain Environmental Protection Committee	Bahrain

APPENDIX 8

COUNTRY REPORTS

1. JORDAN
by Mr Moosa Al-Wali

Main topics in the report

a. Introduction on EE, and in particular EE in Jordan
b. Environmental problems in Jordan and their causes
c. Actions taken in Jordan to solve environmental problems
d. EE in the curricula in Jordan
e. EE in the educational system in Jordan
f. Suggestions in the field of EE

The fast development and progress in science and technology increase the influence of man on his environment and caused environmental imbalance. Man tried to exploit the resources of nature but in an unplanned way which led to misuse of the environment.

Jordan, in the middle of this century, developed rapidly in agriculture, industry, and buildings and this resulted in vast increase in population and caused complex environmental problems.

This situation was faced by authorities in Jordan by taking quick actions to solve it. So EE was the first remedy to this problem, and great importance was given to this by incorporating EE to the schools at all levels.

Major environmental problems in Jordan and their causes

a. Natural environmental problems

(i) Misuse of agricultural lands which leads to desertification;
(ii) Mismanagement of plants which are abundant in the environment;
(iii) Loss of agricultural lands by converting them into buildings;
(iv) Misuse of pesticides and herbicides;
(v) Extermination of wildlife by improper management of hunting;
(vi) Some industrial effluents are discharged into rivers, such as the case in King Talal dam and Alzarga fall;
(vii) Problems of oil from ships, which affect the Al-Aqaba Gulf waters and marine life;
(viii) Increase in the number of cars in the cities.

b. Social environmental problems

(i) Movement of peoples to the cities, which will lead to decrease in food, land, fuel, and good service;

(ii) Decrease in the number of people working on agriculture;
(iii) Lack of studies and research on environmental problems in Jordan;
(iv) Spread of chest diseases among people working in phosphate mines and living near them;
(v) Noise pollution problems;
(vi) Migration of qualified people.

Procedures for Environmental Action

Jordan has participated in the majority of meetings and conferences dealing with the environment. This has increased the awareness of the authorities, and the following actions have been taken:

(i) Royal society for environmental protection;
(ii) Environmental directorates have been established in the Ministry of Health and Agriculture.

These establishments played a major role in protecting the land, air and water environment by enforcing legislations and standards to protect the environment.

EE in the Educational System in Jordan

The Ministry of Education has shown increasing concern and attention to the role of EE in solving environmental problems through its curricula and textbooks. It has established specific objectives of EE to be followed and implemented.

EE has been infused into schools at all levels and laws have been legislated to support such actions.

Suggestions

(i) EE should be infused into community colleges and universities as an independent subject and it should be required for students who want to become teachers.

(ii) EE objectives can be accomplished by an efficient coordination between all concerned institutions.

(iii) Original and applied research on the environment and EE must be related, so the educational programmes in schools can benefit from the results of the studies and researches.

(iv) In-service training of teachers is necessary for promoting the standard of the teachers.

(v) Mass media should play an effective role in enhancing EE by producing programmes that will change the attitude of the masses towards their environment.

2. UNITED ARAB EMIRATES

by Mr Salem Rashid Trais

This report consists of an introduction and six chapters. The first chapter gives strategies of EE in the Arab world and the role of Unesco in developing EE. Background knowledge on UAE is provided in chapter 2. Chapter 3 includes major environmental problems and chapter 4 deals with formal and non-formal EE programmes. Future plans for development of EE programmes is provided in chapter 5, and chapter 6 gives suggestions for improving teacher training methods in EE.

Background information on UAE

The area of the UAE is 86,600 sq kms and the length of the coastline on the Arabian Gulf is 650 kms and on the Gulf of Oman 75 kms. Approximately, 75 per cent of the area is desert, 8 per cent mountains, and 5 per cent agricultural lands. Most of the population is concentrated in lands near the sea.

The source of income was fishing, pearl diving, and ship building. This situation has totally changed after the discovery of petroleum.

Major environmental problems

a. desertification
b. pollution
c. lack of water
d. high levels of salinity of water
e. medical treatment
f. low population

Formal and non-formal EE programmes

This section deals with the sources and objectives of education in the UAE. Special attention has been given to EE.

Science curriculum emphasises the following points:

(i) Problem of lack of water;
(ii) importance of water and air for living organisms;
(iii) methods of protecting our environmental resources;
(iv) protecting ourselves against insects and other disease-causing organisms;
(v) kinds of food and their role in building our body;
(vi) safety.

EE topics are also emphasised in other subjects, such as Islamic Religion and Arabic language.

Non-formal EE comes from the effort of all governmental institutions, such as the Ministry of Interior. This includes the inspection of cars, creation of industrial areas away from the centres of population, public awareness of the use of water and electricity, and increase in agricultural activities.

Mass media such as TV shows special programmes on safety and human health. Newspapers increase public awareness on the importance of protecting the environment.

Future plans for the development of EE programmes

a. Establish an institute of EE. Students can enrol in this institute after completing high school.
b. Enhance environmental awareness programme in formal education;
c. Mass media should contribute more in environmental awareness programmes;
d. Books on EE should be made available to people in libraries and bookshops;
e. Decisions and recommendations taken in workshops and conferences must be fully studied and implemented;
f. Textbooks on EE should relate theory to practice and should include realistic examples extracted from Arabian societies.

Suggestions for improving teacher training methods in EE

a. Before training: This requires a survey of the needs of a training programme.
b. During training: Implementation of the programme, evaluation, and practical applications.
c. After training: Follow-up of trained teachers.

3. BAHRAIN

by Mrs Khatoon Sangoor

Main topics in the report

a. Introduction on philosophy and history of EE in general, and special attention is given to EE in Bahrain;
b. Environmental problems in Bahrain, their causes and solutions;
c. Strategies of the Ministry of Education in Bahrain for EE;
d. In Bahrain, interdisciplinary approach is used in secondary schools and multidisciplinary approach is used in primary and intermediate schools to infuse EE into school curricula;
e. Future plans for improving teacher training methods in EE.

Environmental problems

a. Discovery of petroleum changed the type of work of the people. Most people moved towards working in industries and offices.
b. Land reclamation activities because of population explosion.
c. Desertification.
d. Dumping of waste into the sea and oil spills from ships.
e. Vast increase in the number of industries and cars.
f. Lack of water.
g. High levels of salinity of water.

The above problems have been reduced by finding proper solutions and efficient environmental management. For example, a proper place has been assigned for dumping domestic waste and domestic and industrial sewage are treated before disposing of to the sea. Moreover, EE has been incorporated into all levels of schools.

4. SAUDI ARABIA

by Mr Abdul Aziz Bin Abdulrahman Al-Moamar

Educational policies in Saudi Arabia are extracted from the teaching of Islam, which gives a complete concept about the universe, earth, and man, and calls for protecting the environment from misuse or improper management.

Factors influencing the development of EE in Saudi Arabia

The major factor in this respect is Islam, which forbids excessive and unplanned use of the environmental resources and encourages Moslems to be clean and work in agricultural professions.

There are other factors, such as economical and social influence on the development of EE in Saudi Arabia. This caused an increase in the road network, energy consumption, water consumption, number of hospitals and colleges, number of industries and number of cars.

Environmental problems

a. Dust pollution;
b. Location of industries near populated areas;
c. Increase in the amount of liquid and solid waste generated;
d. Air pollution from cars.

Environmental protection

A specialised directorate has been assigned the mission of protecting the environment by monitoring the amount of pollutants and fixing standards. This directorate started in 1981. Moreover, a committee was formed to coordinate between different ministries and the environmental protection directorate.

EE in school curricula

A book has been recently written on EE and introduced as an optional subject in secondary schools. Also, EE topics are included in science subjects at the elementary and intermediate levels. In higher education, an independent college was established in Jeddah for the study of environment and agriculture on dry land.

A permanent committee was formed consisting of experts from the ministry of education, the ministry of higher education, girls' education and the environmental protection directorate. The goal of this committee is to study and plan methods of promoting EE.

5. SYRIA

by Mrs Liwa'a Shaaban

Trends in planning for EE

1. Sources of planning:
The methods used in teaching EE and its objectives are extracted from policies of education in each country. In Syria, the decisions of the national and regional factions are considered as guidelines in the field of education and the major source for planning.

2. Objectives for planning in EE:
(i) Enhance students' awareness;
(ii) promote students' knowledge about the different components of the environment;
(iii) increase students' participation in solving environmental problems and protecting the resources of the country.

The above objectives can be accomplished through incorporation of EE concepts into all levels of education. Teaching in the school must be accompanied by outside activities, such as camps and clubs and mass media should help in such programmes.

EE curriculum

EE can be infused into the curriculum using one of the following models:

(i) Interdisciplinary which implies that EE is to be considered as a separate discipline drawing on other disciplines like science, geography, etc.

(ii) Multidisciplinary means incorporation of EE components into other established interrelated disciplines.

EE curriculum in Syria is based on the experience and knowledge encountered in the Syrian environment.

The concept of EE was first introduced into elementary education in 1976. In 1982, the ministry of education decided to introduce EE into the elementary and intermediate education using the multidisciplinary approach. In secondary education a separate subject on EE was introduced. The contents included environmental factors, solar energy, food network, and environmental problems.

Moreover, environmental concepts have been infused into other disciplines.

Teaching methodologies in EE

The textbooks written for elementary students have given special attention to colourful illustrations and figures. Most of the figures

are taken from things seen in the society, such as plants and animals. The textbooks also contain activities to be carried out beyond the classroom, like studying natural phenomena observed by students. This will help students describe the phenomena and note all the variables and relationships. These activities are planned in coordination with the ministry of education, and are carried out during summer in special camps. These activities also include simple environmental projects for elementary schools.

They must be based on the following: (i) dealing with a problem related to the experience of the students; (ii) related to the concepts taken from the school, and (iii) can be seen in the students' environment.

There is a close cooperation between the authorities in Syria and international organisations dealing with EE. This cooperation is necessary for gaining outside experience and developing EE in Syria. The country has participated in all conferences, workshops and meetings, organised by national and international organisations on EE and has contributed much in the field of EE.

6. IRAQ

by Dr Abdulrahman Ismail Kadhem

The main points in this report are as follows:

(a) Environmental problems in Iraq, their causes and solutions;
(b) Formal and nonformal EE programmes and future plans for developing EE;
(c) Methods of training teachers and supervisors for primary schools in EE.

Major environmental problems, their causes and solutions

(a) Air pollution
The sources of air pollution are industries, such as refinery, petrochemicals, cement, paper and sugar industries. The second source is the burning of oil, coal, wood and kerosene.

(b) Water pollution
The sources of water pollution are mainly industrial effluents. High levels of salinity of waste water can cause significant damage in the future.

The above problems are dealt with by specialised committees in most country establishments. In the ministry of agriculture the following directorates have been established:

(a) soil and land reclamation
(b) agricultural development
(c) agricultural protection

The ministry of municipality holds the responsibility of ground and sewage water.

The ministry of health has the directorate of general health protection. There is also the institute of natural resources research, scientific centres for research, and the society for environmental protection.

Formal and nonformal EE programme

The multidisciplinary approach is used in Iraq to infuse the EE dimension into curricula. Several textbooks have been written on life sciences to serve this purpose. Examples are:

(a) Life education for first, second and third year primary school;
(b) Science and health education for fourth, fifth and sixth year levels of education;
(c) Agricultural education for levels 4, 5 and 6 in elementary education;
(d) General science and life science for intermediate education.

Moreover, the Arabic books consist of vocabulary extracted from the environment. EE is taught as an independent subject in higher education in the college of education. Theoretical studies are accompanied by practical activities at all levels.

Non-formal education has been accomplished through the national policy which aims at improving and protecting the environment by introducing environmental concepts to the people. Knowledge about the environment is disseminated through newspapers, books, journals, workshops, TV programmes and radio.

Future plans for developing formal EE

The EE curriculum should

(a) enhance awareness about methods of protection of environmental resources;
(b) give examples of historical incidents that show the danger of the misuse of resources;
(c) correct wrong ideas and concepts about environmental resources;
(d) carry out comprehensive studies on national and international resources; and
(e) encourage cooperation between individuals and institutions in environmental protection.

7. OMAN

by Mr Mohamed Bin Al-Haj Hussain Ismail Al-Shahi

The Omani government has given great importance to the environment and its protection. It has formed a council for environmental protection and held several conferences and workshops on the environment.

Background information on Oman

The area of Oman is 312,000 sq kms, and 15 per cent of this is mountains, 65 per cent valleys, and 20 per cent sandy land. The coastline is approximately 1,700 kms.

This report introduces information on several aspects of Oman, like natural, social, economic and cultural.

Major environmental problems, their causes and solutions

(a) Air pollution
The sources of air pollution can be classified into two categories: (i) natural sources: sand storms, burning of waste, and salt droplets; (ii) man-made sources: industries, cars, and activities at home like burning coal, kerosene and gas.

These problems are solved by taking the following procedures: (i) continuous assessment of industrial emissions; (ii) assign locations for industries, and (iii) set standards for industrial emissions.

(b) Noise pollution
Sources of noise pollution are automobiles, planes, power stations, industries, etc. It is reduced by

(i) assigning locations for industries and specifying working hours; and (ii) making rules and regulations to minimize noise pollution.

(c) Water pollution
Sources of sea water pollution are domestic and industrial waste, waste water from agricultural lands, oil from ships, and oil spills. The government has introduced regulations to reduce sea water pollution.

(d) Environmental pollution from pests
Many kinds of pests and rodents are found in houses, like mosquitoes, cockroaches, bugs and ants. These cause significant damage to agricultural products. This problem has been overcome by employing certain birds and fish which feed on insects, and by public awareness of the danger from rodents, and use of pesticides.

Formal and nonformal EE programmes

(a) EE is introduced at all levels of education.

(b) The ministry of information was assigned the mission of presenting programmes on EE.
(c) Use of instruments to detect and identify pollutants.
(d) Enforce environmental protection through legislation.
(e) Make a survey of all animals and plants in the Omani environment.
(f) Hold conferences on environmental issues and teachers and supervisors training in EE.
(g) Join ROPME.
(h) Cooperate with Sultan Qaboos University in research on the Omani environment.
(i) Publish a periodical on environmental studies.

Future plans for developing formal and non-formal EE

(a) Use modern techniques in improving education.
(b) Emphasize practical and out-of-school activities.
(c) Increase teacher training workshops to cover all parts of Oman.
(d) Increase the percentage of agricultural lands.
(e) Envisage a comprehensive plan for environmental protection and to solve its problems.
(f) EE to be emphasised in all future projects.
(g) Encourage research on topics dealing with Oman's environment.

8. QATAR

by Mr Saad Al-Kubaisi

Environmental problems in Qatar and their solution

(a) Industries like iron and steel, petrochemicals, refinery, cement, and fertilizers.
(b) Increased rate of consumption and the need for labour.
(c) Sea water pollution from oil spills.

These problems are solved as follows:
(a) Introduce teacher training programmes on EE to enhance environmental and health awareness.
(b) The ministry of education introduced a 'general service' day in all schools, to clean the school and surrounding areas.
(c) Give lectures to students on the importance of the environment.
(d) Clean the coastline of oil.
(e) Industrial areas are created outside populated areas.
(f) Proper management of construction, domestic, and industrial waste.
(g) Increase the area of agricultural land.
(h) The ministry of information presents programmes through radio, TV, and newspapers.
(i) Special committees are formed for environmental protection.
(j) Qatar University carries out studies and research on topics dealing with environment.
(k) Other institutions also contribute in solving environmental problems.

9. KUWAIT

by Mr Mohamed Yousif Al-Omar

Kuwait has attached great importance to protecting its environment since 1960. At first there were several agencies working in the same direction, but there was a lack of coordination among them. So the government formed a committee to protect the environment in 1976 and its president was the minister of health. The committee was intended to liaise between all governmental institutes on environmental protection. In 1981 a council for environmental protection was formed to carry out the following duties:

(a) suggest general policies for environmental protection;
(b) suggest future plans;
(c) coordinate among all concerned parties on environmental protection;
(d) study problems caused by pollution and suggest solutions;
(e) cooperate with international organisations dealing with environment;
(f) set guidelines for programmes to create public awareness.

The council formed several committees such as the committees on environmental awareness and EE.

Major environmental problems in Kuwait

The sources of the problems are natural, like organic and inorganic soil carried by winds, and man-made, like industrial activities causing air and water pollution.

There are many governmental and non-governmental institutions assigned the job of environmental protection from pollution. Examples are (i) Higher Council for Environmental Protection, (ii) Directorate of Environmental Protection, and (iii) Environmental Protection Council.

Other institutions, like Kuwait University, Kuwait Institute for Scientific Research, and Kuwait Institute for Scientific Development.

Formal and nonformal programmes on EE

EE is an important part at all levels of education in Kuwait. At all school levels, environmental concepts are introduced into the curriculum using both the interdisciplinary and multidisciplinary approaches. Teacher training institutes teach subjects like environmental psychology, and health science institutes also teach the interrelationship between environment and health. The Kuwait College of Education has introduced a course on EE.

The Environmental Protection Society plays an important role in educating people about their environment.

Future strategies on EE

Kuwait participates in most meetings and conferences in the field of environment and implements the recommendations and strategies suggested by regional and subregional conferences.

The government plans to introduce new programmes in the field of EE and increase the number of teacher training workshops on EE.

APPENDIX 9

MEMBERS OF THE ORGANISING COMMITTEE

Name	Position	Country
1. Dr Abdul Ghafoor Ghaznawi	Unesco Representative	Paris
2. Mr Rashid Sulaybikh	Secretary General Bahrain National Commission	Bahrain
3. Miss Badriya Al-Ahmad	National Commission	Bahrain
4. Mrs Shahnaaz Haji	National Commission	Bahrain
5. Mr Jiya Lal Jain	Secretary General, USI	Bahrain
6. Mr Abdulla Al-Meer	Public Relations	Bahrain
7. Mr Abdulla Yusuf	Public Relations	Bahrain
8. Mr Abdulla Buhmail	Public Relations	Bahrain
9. Mr Ibrahim Kafafy	Public Relations	Bahrain

APPENDIX 10

SUMMARY OF EE IN THE LIGHT OF TBILISI CONFERENCE

Mr Khalid Fakhroo

INTRODUCTION

The first intergovernmental conference on EE organised by Unesco in cooperation with UNEP was held at Tbilisi, USSR, in October 1977.

This conference was a starting point for the International EE Programme (IEEP). It emphasized the importance of EE in the preservation and improvement of the world's environment and reinforced the major goals of EE which were to develop awareness and concern among the world population about the ecological, economic, political and social interaction and interdependence in the environment and their problems. Moreover, a number of guiding principles were framed for EE curriculum developers. It was also emphasized that EE should be a forward-looking and a continuous lifelong process; consider the environment in its totality; follow a problem-solving interdisciplinary approach; and adopt a world outlook with due regard to regional differences.

It was stated in the conference that EE was not a new discipline but a new dimension in the existing curricula cutting across different disciplines. So it should form an essential component of all programmes of the existing education system.

The conference outlined strategies for the promotion of EE at the national level. The target group for EE included public, professional, and scientific groups.

The Tbilisi Conference emphasized the pre-service and in-service training of teachers in EE, so this will enable them to incorporate environmental dimensions effectively into their respective activities.

Besides teacher training programmes, dissemination of information through the mass media was also emphasized.

The conference ended with providing 41 recommendations, which established a basic framework for planning, guiding, and improving national efforts in EE at various levels.

I. EDUCATION AND ENVIRONMENTAL PROBLEMS

Man's interaction with the environment occurred since the creation

of mankind and this interaction caused significant changes in the natural environment.

The societies now are different from previous ones in that the changes in the environment occur very rapidly due to the scientific and technical revolution and the effects of such changes are very evident.

As a result of these changes, environmental problems increased and became more complex. The nature of environmental problems is different in various parts of the world. In developed countries, environmental problems mainly relate to pollution, fast depletion of several natural resources and overall damage to the ecosystems. In developing countries, the problems are quite different from the developed countries. In these countries, energy and resource consumption is not high and pollution problems, if any, are mostly localized. But there are the problems of poverty, diseases, lack of adequate housing, clean drinking water and safe disposal of human body wastes. High population levels and growth rates are the causes of many such problems.

A degraded state of the environment poses serious threats to the well-being of ecosystems as well as the survival of the human race. Many voices have been raised in alarm over the environmental crises.

ENVIRONMENT AND DEVELOPMENT

Urbanization and industrialisation are not necessary, positive indications of the development of society. Until 1970, people believed that economic growth and industrial and technological development will improve the quality of life by producing more marketable goods and excavate for mineral and energy sources. It is evident now that such a notion is not completely true because this rapid development has created many environmental problems.

It is important for any developing country to keep in view the environmental concerns and that it should be part of the development process so as to make it ensuring and free from unwelcome side effects.

NEED FOR EE

Mass media has played an important role in increasing the public awareness on environmental problems, but its influence is limited and the issues were not covered deeply. So the public do not understand all sides of the problem and cannot provide practical solutions or participate effectively to solve the environmental problems. This situation gives rise to a need for EE which will promote environmental awareness based on scientific knowledge

and increase the participation of the people towards protecting and conserving their environment.

The need for EE was stressed in the United Nations Conference on the Human Environment, held at Stockholm, between 5 and 16 June 1972. Recommendation 96 states that 'it is recommended that the Secretary General, the organisations of the United Nations System, especially Unesco, and the other international agencies concerned, should, after consultation and agreement, take the necessary steps to establish an international programme in EE, interdisciplinary in approach, in-school and out-of-school, encompassing all levels of education and directed towards the general public, in particular the ordinary citizen ... with a view to educating him as to the simple steps he might take, within his means, to manage and control his environment.'

In response to the above recommendation, Unesco and UNEP launched an International EE Programme (IEEP) in 1975. As a part of the activities of IEEP, an international workshop on EE was held at Belgrade in 1975. Two years after the Belgrade Workshop the first Intergovernmental Conference on EE, organised by Unesco in cooperation with UNEP was held at Tbilisi, USSR, in 1977. The Conference emphasized the importance of EE in the preservation and improvement of the world's environment. This Conference was the culminating point of the first phase of IEEP and it outlined strategies, goals, and objectives for the promotion of EE at the national level.

II. OBJECTIVES AND CHARACTERISTICS OF EE

The final report of the Tbilisi Conference stated that " ... EE is an essential part of the process of education ... it should constitute a comprehensive lifelong education, one responsive to change in a rapidly changing world. It should prepare the individual for life through an understanding of the major problems of the contemporary world, and the provision of skills and attributes needed to play a productive role towards improving life and protecting the environment with due regard given to ethical values. By adopting a holistic approach, rooted in a broad interdisciplinary base, it recreates an overall perspective which acknowledges the fact that natural environment and man-made environment are profoundly interdependent. It helps reveal the enduring continuity which links the acts of today to the consequences for tomorrow ... "

We realise now the critical role of education in solving the environmental crises and societies can expect the significance of educational systems in disseminating knowledge, preparing better individuals, and ameliorating the present environmental problems. Education today has great relevance to the environmental realities and this may strengthen its ethical function. Education will enable the citizens to design, devise, and plan actions which are in harmony with the environment.

Education about the environment will help individuals to realise their responsibility towards the total environment. The new term 'environmental education' is really not a new concern for the environment as far as learning is concerned. It was practised at all levels of learning especially in informal ones, so it is not a new type of education. It is only for renewing the emphasis on environment and the related issues in the educational system as such. EE emphasizes on the identification and development of values and classification of concepts, in order to develop problem-solving skills leading to the understanding of interdependence of man and his biophysical surroundings.

Thus environment may become a focus of education at all levels.

GOALS AND OBJECTIVES OF EE

The objectives of EE are summarised as follows: (1) Awareness. To help social groups and individuals acquire an awareness of a sensitivity to the total environment and its allied problems.
(2) Knowledge. To help social groups and individuals gain a variety of experience in and acquire basic understanding of, the environment and its associated problems.
(3) Attitudes. To help social groups and individuals acquire a set of values and feelings of concern for the environment and the motivation for actively participating in environmental improvement and protection.
(4) Skills. To help social groups and individuals acquire the skills for identifying and solving environmental problems.
(5) Participation. To provide social groups and individuals with an opportunity to be actively involved at all levels in working towards the solution of environmental problems.

CHARACTERISTICS OF EE

The characteristics and guiding principles of EE are listed below as declared at the Tbilisi Conference:
1. Consider the environment in its totality including the natural and built technological and social aspects and the correlations between them.
2. Be forward-looking and a continuous lifelong process.
3. Be interdisciplinary in approach.
4. Examine major environmental issues from local, national, regional, and international points of view.
5. Explicitly consider environmental aspects in national plans for development and growth.
6. Help learners to discover the symptoms and real causes of environmental problems.
7. Emphasize the complexity of environmental problems and thus the need to develop critical thinking and problem-solving skills.

III. INCORPORATION OF EE INTO THE EDUCATIONAL SYSTEMS FOR STRATEGIES AND METHODOLOGIES

The final report of the Tbilisi Conference stated that 'EE should not be just one more subject to add to existing programmes, but should be incorporated into programmes intended for all learners, whatever their age ... its subject matter should permeate every part of formal and nonformal programmes and constitute one and the same continuous, organic process ... the central idea is to attain, by means of growing interdisciplinarity and of prior coordination of disciplines, a practical education oriented towards a solution of the problems of the environment, or at least to make pupils better equipped ... to participate in decision-making.'

PRESENT TRENDS IN EE

Since the Tbilisi Conference, most countries, both industrialised and developing, have made considerable efforts to develop EE through preparation of various types of teaching materials.

The developing countries have paid most attention to the production of conventional printed materials such as handbooks, teaching guides, books and magazines. Audio-visual materials such as films, slides, and tapes have also been produced.

The IEEP has developed a series of studies, research activities and projects leading to the preparation of methodological guides concerning approaches for the incorporation of an environmental dimension into educational practice. Also, source books for teachers on formal and nonformal EE, a multilingual glossary etc have been produced.

The IEEP has organised 11 regional and subregional training workshops for teacher training in EE, as well as 35 national training workshops in all regions.

The IEEP has aided efforts of a number of countries concerning the incorporation of an environmental dimension into their educational systems.

So, significant improvement has been achieved during the last ten years in EE and in environmental protection.

STRATEGIES FOR THE INCORPORATION OF EE

In strategies for the incorporation of the environmental dimension into the formal educational process, the dominant trend has been to infuse content relative to various environmental problems into the natural science (biology, ecology, etc). However, appreciable progress has been made to break down the barriers between EE activities in these sciences. Many countries indicate that

environmental content has also been incorporated into social studies (geography, economics, etc). This provides evidence of considerable progress towards the holistic approach to EE, as well as possessing a good knowledge of the working of the natural ecosystems and the visible manifestation of environmental problems.

Strategies aimed at incoporating EE into the formal educational system should take into consideration the components of the educational process, such as objectives, contents, methodologies, teaching materials, research activities, evaluation, and teacher training.

NON-FORMAL EE

The declaration of Tbilisi Conference proclaimed: "EE should be provided for all ages, at all levels and in both formal and non-formal education. The mass media have a great responsibility to make their immense resources available for this educational mission."

Non-formal EE is complementary to formal EE and it can play an important role in improving and preserving the environment. Non-formal EE should enhance participation and cooperation of all classes of the people and create a responsible citizen toward his environment. It should promote the awareness of all citizens on environmental issues and assign a specific role for each class of the citizens.

Non-formal EE activities can be grouped together into two main categories according to the extent to which they are formalised: on the one hand, the systematic, though non-formal, education provided by public or private bodies concerned with adult education or, in certain cases, the literacy training of various socio-occupational categories in the different sectors of production (industry, agriculture, trade); on the other hand, the education and information of the general public (young people and adults, producers and consumers), usually obtained through participation in community life or exposure to the mass media.

TRAINING OF PERSONNEL

The final report of the Tbilisi Conference stated that ' ... the training of qualified personnel is ... a priority activity. This holds good for both pre- and in-service training, for the purpose of familiarising teachers in formal education and organisers of non-formal activities for young people and adults ...'

The incorporation of EE into the formal and non-formal educational system entirely depends on training of personnel in the field of EE and on implementing such programmes. So training is a key factor in the development of EE.

Moreover, new courses on the environment for school and out-of-school education cannot be introduced, nor can educational material be properly used unless teachers are given suitable training as regards both the content of EE and the methods that should be used for it. Teacher training plays a strategic role in that it is the best way of multiplying the impact of EE at national level, thereby increasing the effectiveness ... and the cost effectiveness ... of the efforts made by States for the development of EE.

EE should be given to all categories of people. Specialists should be trained in the sectors of industry and agriculture, skilled workers, farmers, craftsmen, supervisory personnel, etc. The activities of these categories of people if not directed properly and trained efficiently might have a considerable impact on the environment and, consequently, on the conservation of its quality and productive potential.

ROLE OF MASS MEDIA IN THE FIELD OF EE

Mass media can play an important role in stimulating and extending awareness concerning the environment, by regularly disseminating information on the subject. The number of scientific journals, books for the general public and television programmes concerning the environment in general or its specific problems has increased in the last few years.

However, two difficulties are experienced in using mass media: (1) There is still some ambiguity about the information disseminated by the mass media, which is due to the diversity of aims behind the messages concerning the environment; (2) the content of the messages conveyed by the media can be misleading.

RESEARCH IN EE

In the last few years great efforts have been made to enhance research and experimentation in EE because of the need to ensure the coherent development of this type of education on the basis of a rational analysis of the facts, problems, and national requirements.

Research and experimentation will make educators aware of the need for EE, and provide an opportunity fo assembling human, technical and material resources to meet the complex pedagogical and institutional demands which its provision entails. Moreover, they make it possible to carry out a number of educational innovations in the treatment of EE, the development of new teaching methods and the conception of more effective educational and training programmes.

IV. INTERNATIONAL COOPERATION IN THE FIELD OF EE

OBJECTIVES OF INTERNATIONAL COOPERATION

1. Coordinate all international activities and actions in the field of EE.
2. Make available all the technical and financial resources for the activities of the Member States.
3. Avoid duplication of efforts.
4. Promote EE in the Member States.

FIELDS OF COOPERATION

1. Exchange of available information and experiences.
2. Training of personnel.
3. Organise workshops on the national, subregional, and international level.
4. Cooperation in the field of research, experiments, and studies in EE.

ROLE OF UNITED NATIONS ORGANISATIONS IN DEVELOPING INTERNATIONAL COOPERATION

Most UN organisations participate in the activities of teaching and training in EE. These activities are aimed at all levels of people.

One of the most active organisations of the UN in the field of EE is the United Nations Environmental Programme (UNEP). So, UNEP in collaboration with Unesco launched the International EE Programme (IEEP) and in 1977, the first Intergovernmental Conference on EE was organised at Tbilisi, USSR. In 1982, UNEP issued a book, **Development Without Destruction**, in which a separate chapter was designated for EE.

Several activities have been undertaken by IEEP, namely exchange of information, development of EE goals, guiding principles and concepts, research and experimentation, training of personnel and international cooperation.

Unesco has increased its activities in the field of EE by organising meetings and enhancing international cooperation.

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